

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

**FINAL MEETING NOTES
TAC MEETING – FRIDAY, FEBRUARY 13, 2009
DEQ PRO TRAINING ROOM**

Meeting Attendees

<i>TAC Members</i>	<i>Interested Public</i>	<i>DEQ Staff</i>
Karl Berger	Kathy W. Crockett - Citizen	Beth Biller
Rhonda L. Bowen	Mary Graf - Citizen	Jerome Brooks
Greg Evanylo	Steve McMahon - Synagro	Bryan Cauthorn
Katie Kyger Frazier	Harrison Moody – Recyc Systems	Ellen Gilinsky
Tim Hayes	Sharon Nicklas – Alternate for Rhonda Bowen	Angela Neilan
Larry Land	Lisa Ochsenhirt – AquaLaw /VAMWA	Bill Norris
Chris Nidel	Mary Powell – Nutri-Blend	Charlie Swanson
Jo Overbey	Hunter Richardson - Synagro	Anita Tuttle
Jacob Powell	Wendie Roumillat _ Citizen	Christina Wood
Ruddy Rose	Alan Rubin - Citizen	Neil Zahradka
Henry Staudinger	Susan Trumbo – Recyc Systems	
Wilmer Stoneman		
Ram Tripathi – VDH (Alternate for Carl Armstrong)		
Ray York		

NOTE: The following Biosolids TAC Members were absent from the meeting: Carl Armstrong – VDH; Jim Burn -VDH; Lloyd Rhodes

1) Welcome/Introductions/Procedural Items (Neil Zahradka):

Neil Zahradka, Manager of DEQ's Office of Land Application Programs, welcomed all of the meeting participants to the fourth meeting of the Technical Advisory Committee. He thanked all of the Technical Advisory Committee Members for their continued interest in the effort. He noted that we wanted to be as efficient as we can in getting through materials that we started last meeting and getting to some new materials. He noted the following:

- We will start with a few quick reminders of what we were working on at the last meeting.
- Will talk about “storage” this morning. We would like to limit that conversation to an hour or so. Some materials were distributed but we did not receive very many comments back. We want to get your input this morning.
- Will try to begin the “odor” discussions before lunch.
- We realize that with the number of items that this TAC has to discuss that we may not always have the time to hash out the details and may not be able to figure out what kind of consensus we have. If on some contentious items, we don't have the time to work out a “consensus”

agreement/understanding, we do want to make sure that we get input from each member of the TAC. If we don't have time to hash through it, we want to make sure that each TAC member is heard. If you have something that you think that you might not want to bring up because it may take too long, please make sure that you do voice your thoughts. We want to make that we capture your viewpoint in the notes, even if we don't get to the point of reaching a "consensus".

- Please email your comments on any items or you can call Neil directly.

Neil asked for comments or input on the notes from the last meeting. The TAC provided the following:

- Henry Staudinger had submitted a clarification request to DEQ staff on the "consensus" process. The question posed was: *"Under the TAC procedure as reflected in the minutes, the committee is addressing individual regulatory provisions, but not in the overall context of the biosolids program – in particular health issues. Thus consensus of individual committee members to specific language may not be the case when consensus (or lack of consensus) is reached on other issues. Accordingly, it is my understanding that the committee will revisit earlier issues when requested as appropriate."* The response to this request was: *"If what you are asking is whether or not you will have the opportunity to change your position on something based on the way it overlaps with a concept discussed later in the TAC meetings, then yes, you are correct. We are compartmentalizing in order to better structure the discussions, but we realize that there are many issues that overlap. When other issues are discussed, if you feel that your position on an earlier topic has changed, just let us know and we will consider that as part of the input of the TAC."*
- Henry Staudinger provided comments on a couple of consensus items from the last meeting notes. His comments included the following:
 - *"From my perspective, there was consensus that addition of land to a permit should not be classified as a major or a minor modification because the only impact of that reclassification would be that there would be no imposition of a fee associated with the addition of land. This limited impact that formed the basis of the consensus should be reflected in the minutes."*
 - *"Consensus as to notification of adjacent property owners if acreage is added to an existing permit, no matter what the percentages involved, did not address whether additional nearby property owners should be notified because of potential health concerns. Thus the ultimate list of those to be notified will be addressed after the health issues are addressed by the TAC. This should be clarified in the minutes."*
- Katie Frasier requested that "informational items" included in the draft notes, be removed and possibly included as a separate informational item and not part of the official notes of the meeting.
- Jo Overbey noted that the "consensus" noted on "The signs shall remain in place for at least '5 business days' after land application has been completed at the site." was not actually a consensus. She noted that she just agreed to stop fighting it.

ACTION ITEM: Staff will incorporate the suggested changes into a "final" version of the Meeting Notes from the last meeting.

Neil asked for introductions from all those attending the TAC meeting.

Procedural Items:

- The “Open Chair” will be used. During the TAC discussions, if there is someone sitting around the outside of the room that has something pertinent to say about the item being discussed, the “open chair” will be “open” at the end of the TAC discussions for that input. A three minute time period will be used. It was noted also that if a TAC member desires to get the input from an “interested party”, then they can request that the individual come to the “open chair” to provide that input. It was noted also that if a TAC member had comments that had been provided to them in advance of the meeting that were pertinent to an item being discussed that they could provide those comments as appropriate. Staff noted that the “interested parties” should feel free to work through their representatives on the TAC to make sure that their comments were brought to the attention of the TAC.
- There will be a “Public Comment Period” at the end of the meeting.
- If there are questions, there are note cards available for documenting those questions. If they are pertinent to the discussions they will be considered during the course of the TAC discussions, if they are questions that are not immediately germane to the current discussions, staff will provide responses to the questions outside of the TAC discussions or following the TAC meeting.

Information: HB 2558 is germane to our previous conversations on “notification”. This piece of legislation has been passed by the House and the Senate and is going to the Governor for signature. HB 2558 is “An Act to amend and reenact §§ 62.1-44.19:3 and 62.1-44.19:3.4 of the Code of Virginia, relating to permits for the land application of sewage sludge. Revised language includes:

*§ 62.1-44.19:3.C.10. Procedures for receiving and responding to public comments on applications for permits and for permit amendments authorizing land application at additional sites. Such procedures shall provide that an application for ~~a permit amendment~~ **any permit amendments** to increase the acreage authorized by the **initial** permit by 50 percent or more shall be treated as a new application for purposes of public notice and public hearings.*

*§ 62.1-44.19:3.4. Notification of local governing bodies. A. Whenever the Department receives an application...~~The Board shall not consider the application~~ **issue the permit** for land disposal ~~to be complete~~ until the public meeting has been held and comment has been received from the local governing body, or until 30 days have lapsed from the date of the public meeting...*

ACTION ITEM: Staff will send link to the legislation to the TAC.

2) Biosolids TAC Discussion of Biosolids Storage (Bryan Cauthorn):

Bryan Cauthorn, DEQ Biosolids Compliance Coordinator, presented a series of slides to the TAC to help clarify and identify the different types of land application sites; staging areas, and storage areas that the TAC will be considering in today's discussions. He provided a handout which provided a “biosolids timeline” related to various “biosolids” activities related to storage of biosolids for land application. The “biosolids timeline” contained a notation that “Biosolids must be removed from the storage site within 48 hours if objectionable odors related to the stored biosolids are verified by DEQ at

any occupied residence on surrounding property.”

TAC initial discussions related to “storage” included the following:

- This does not include any type of storage at a generating facility or a plant site.
- Staging area for storage prior to application on the same day.
- Smaller applicators use storage as a multiple day storage option prior to application due to limitations on size and/or availability of equipment.
- On Farm storage for use on that farm only.
- Storage facility provides for a longer term storage option in cases of bad weather when a site can't be accessed for land application.
- The difference between the proposed time lines for “Winter Stockpiling” (Nov.-Mar.) and “Summer Stockpiling” (Apr. - Oct.) of 14 days versus 5 days was questioned. Staff suggested that the different time lines were directly related to the differences in weather conditions and/or the duration of weather conditions and time of year. Staff noted that the summer weather conditions, i.e., warm temperature and rain, might cause more “odor” potential.
- TAC noted the escape clause of the 48 hours “objectionable” odor clause at the time of the timeline.
- It was noted that in Virginia, the mean monthly rainfall was pretty evenly distributed. In any given year, one month may be higher than others.
- It was noted that even rainfall is evenly distributed, but that evaporation is not evenly distributed.
- Notification requirements would be used to keep track of the length of time that biosolids were being “stored” on a given site. Currently the land applicators are providing daily notifications to DEQ. If a problem is noted during these notifications, i.e., the applicator is having to place material in “storage” due to weather or unforeseen circumstances or conditions, then DEQ can start the clock on the length of time that the material is being stored and the required action points in the timeline. DEQ has staff out on the sites all the time, so verification should not be a problem.

Staff reviewed the statutory requirements related to “storage” which include the following:

§ 62.1-44.19:3.A.5: Beginning July 1, 2007, no application for a permit or variance to authorize the storage of sewage sludge shall be complete unless it contains certification from the governing body of the locality in which the sewage sludge is to be stored that the storage site is consistent with all applicable ordinances. The governing body shall confirm or deny consistency within 30 days of receiving a request for certification. If the governing body does not so respond, the site shall be deemed consistent.

§ 62.1-44.19:3.R. Localities, as part 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. Notwithstanding any contrary provision of law, a locality may be ordinance require that a special exception or a special use permit be obtained to begin storage of sewage sludge on any property in its jurisdiction, including any area that is zoned as an agricultural district or classification. Such ordinances shall not restrict the storage of sewage sludge on a farm as long as such sludge is being stored (i) solely for land application on that farm and (ii) for a period of no longer than 45 days. No person shall apply to the State Health Commissioner or the Department of Environmental Quality for a permit, a variance, or a permit modification authorizing such storage

without first complying with all requirements adopted pursuant to this subsection.

Staff introduced the “Proposed Regulatory Requirements for Managing Biosolids Storage” and noted that the following:

- This is a proposed mechanism for managing biosolids that have not yet been spread.
- These guidelines are based on discussions of the TAC at the January 9, 2009 meeting and upon further analysis by program staff.
- Staging areas and on-farm storage identifies the type of biosolids management that would be used solely for land application on the farm where it is unloaded, and for a period of no longer than 45 days.
- “Staging area” means the location where biosolids are deposited on the ground for loading onto a vehicle for application on the same or nearby sites, in conformance with an approved biosolids operation and maintenance manual. Typically, biosolids would be spread within the same day of delivery.
- Options, including “stockpiling” and “On Farm Storage” were also identified in the proposed language.

Staff introduced the proposed language to address “stockpiling” of biosolids for 1 to 14 days:

- 1) Only biosolids suitable for land application (Class A or B pathogen control) and established as having minimal odor [e.g. pH of 11 or more, or digested with a volatile solids level of 60 percent or less or other method approved by DEQ] shall be placed into stockpile or storage.
- 2) No liner under or over biosolids
- 3) The minimum buffer distance to occupied residences will be 500 feet.
- 4) Buffer reduction of up to 250 feet may be granted if the affected party agrees to the reduction in writing and submitted to DEQ
- 5) DEQ Notification
- 6) Biosolids shall not result in water quality, public health or nuisance problems
- 7) Biosolids shall be located to provide minimum visibility
- 8) Best management provisions [e.g. surface water diversions] shall be utilized as appropriate to prevent contact with storm water runoff
- 9) Biosolids stockpiles are to be checked by the generator or its agent at least every 7 days and after precipitation events to ensure that runoff controls are in good working order. Any observed excessive slumping, erosion or movement of biosolids is to be corrected within 24 hours. Any ponding or excessive odor at the site is to be corrected. Documentation of biosolids stockpile field checks shall be submitted with monthly reports on a form approved by DEQ
- 10) Shall not occur in areas prone to flooding at a 25-year or less frequency interval as identified by the County Soil Survey
- 11) No ground water within 36 inches
- 12) The distance to bedrock shall be equal to or greater than 40 inches
- 13) Stockpiles shall only occur on well drained or moderately well drained soils as identified by the County Soil Survey
- 14) Quantity shall be limited to the amount equivalent to the quantity that would provide the agronomic rate of application for the approved site
- 15) Residual biosolids remaining on the soil shall be scraped and removed, the soil at the site shall be tilled to break up compaction, and the site shall be cropped to take up nutrients

- 16) Maximum of 14 days stockpiling from placement in stockpile, during the months of November through March
- 17) Maximum of 5 days stockpiling, from placement in stockpile, during the months of April through October
- 18) No stockpiling on karst topography

TAC discussions related to the proposed “managing biosolids storage” language for “Stockpiling (1 to 14 days)” included the following:

- It was suggested that buffers from water features should be part of the considerations for storage limitations/criteria. These should be part of the “stockpiling” criteria. Buffers to the water features and buffers for nutrients. It was noted that the stockpiling would be in the application area so that these buffers should have already been considered as part of the application process.
- Item # 10 addresses the prohibition for “stockpiling” in a flood plain. It was noted that current regulations/statute do not allow for the storage/stockpiling in a flood plain. Also have to be careful to not allow any storage/stockpiling in any “pollutant sensitive sites”, i.e., karst sites. It was suggested that any “pollutant sensitive sites” in the state should be identified so that NO storage or stockpiling of biosolids would occur on those areas.
- Item #5 DEQ Notification is assumed to be part of the already required “daily notification” to DEQ and NOT a separate notification. Any unanticipated “stockpiling” would need to be included in the daily notification to DEQ.
- Item #8 – the use of the phrase “to prevent contact with storm water runoff” was questioned. It was suggested that a better wording might be “Best management provisions [e.g. surface water diversions] shall be utilized as appropriate to prevent contaminated stormwater runoff from polluting surface water or contaminated runoff resulting in pollution of surface water. A suggestion was made that this language would be better suited for use as a “policy statement”, but may not be the best to use as part of the regulation language. The use of a possible list of BMPs was suggested. It was noted that in the DEQ regulations that generally a detailed specific list of BMPs would normally be placed in guidance rather than as part of the regulation since BMPs might change and any changes to a regulation takes two years. A question was raised over what is called “contaminated runoff”. The more important issue is where it goes, does it just go onto the field where the biosolids were being applied or does it go into surface water.
- Item #9 – The “permittee” not the “generator” is likely to be the one that will be checking the biosolids piles.
- Item #9 – The requirement for the “inclusion of the documentation of biosolids field checks” in a monthly report when it is included in the “daily notifications” was questioned. It was noted that the inclusion of the “field checks” information in the “daily notifications” would be sufficient to meet this reporting requirement and that a separate monthly report would NOT be required.
- A question was raised over the requirement for a “daily notification” to DEQ. During the previous TAC meeting the use of a more encompassing report to cover the entire operation would negate the requirement for a “daily notification” unless the reported application schedule or “stockpiling” required noted in that report changed. If the situation changes then an additional notification would be required. The wording from the previous TAC meeting was “anticipated application schedule” or “expected daily activities” or “expected daily operations”.

Any changes in the schedule or activities or operations would require a “notification” in writing to DEQ.

- Item #9 – Regarding “odor” – A question was raised over how “excessive odor” would be determined. It was suggested that this question would be addressed during the discussions on “odor” this afternoon.
- Item #9 – Regarding “precipitation events” – A question was raised regarding the meaning of the term. Staff responded that it was rain, snow, sleet, etc. (DEQ speak!)
- A question was raised regarding the use of the term “on farm” and the meaning of the term. It was noted that this applies to the staging of materials for use on that field or an adjacent field. Not hauling it back down the highway. No more materials than could be applied on that farm within 14 days. Most applications are within 4 to 5 days.
- It was suggested that we might be “backsliding” here since we originally said that “stockpiling for 1 to 14 days” is NOT storage it is simple “preparing to spread”. If we get into prescribing BMPs for this particular pile of biosolids that are “preparing to spread”. The BMPs for this pile is simple “locating it in the right place” and “in a safe place”. It shouldn’t be on a site where it can go into surface water. A question was raised whether the designation of a “stockpiling area” could be part of the permitting process? It was noted that this may vary so much that it wouldn’t it would be impossible to predict at the time of permitting.
- “Stockpiling for 1 to 14 days” is NOT “storage”.
- “Performance standard” should be the focus. Best Management Practices don’t need to be structural. It can be something that reasonable people can agree on. It doesn't have to be expensive.
- A question was raised whether DEQ inspects all of these sites? If so, then why do we need to go through all of these requirements? The inspector should be able to determine if the “stockpiling site” is appropriate. There need to be some general criteria for selection of land application and “stockpiling” sites. i.e., are the criteria protective of the “storage” site. If they are going to spreading the materials then they can also move it if the stockpiling area is not properly sited. The real question is whether the BMPs that are used for land application are suitable for stockpiling and are protective of the environment,
- It was noted that the key principle regarding “stockpiling for 1 to 14 days” is “location – location - location”. Need to make sure that the location for the stockpile is identified properly.
- The process for determining the location for stockpiling is an important consideration.
- A question was raised Item #2 regarding the need to provide a cover for a pile of biosolids that is being stockpiled due to a weather event. It was noted that there should be little difference between the applications of the biosolids in the field and stockpiling due to the nature of the material shouldn’t make any difference on the impact of rain events if it is located in a suitable locations. Also, the issues of the handling/management of the plastic or materials used for this cover are unknown.
- It was noted that there are EPA recommended guidance on the application of biosolids. The nature of biosolids is that they “crust”. Water tends to not enter the material easily and tends to shed water, so there is no widespread movement of the material.
- The TAC noted that items 10; 11; 12; 13 all exceed the requirements for land application. If you are stockpiling for 1 to 14 days in anticipation of land application then the requirements should NOT exceed that for land application. It was noted that the TAC is not in any means finished with their discussions of the items on this page of suggested language. A question was raised as to where these concepts/ideas came from. Staff responded that as a broad concept, some facilities are better than others and there is a need for “storage” sites then if we lessen the

requirements upfront for storage for sites on the farm where we know the materials will be land applied in a short period of time and look to tighten down the requirements for actual longer term “storage” facilities. It was noted that this doesn’t seem to be lessening the requirements. Staff responded that it is since you don’t have to spread it on the same day. Basic location requirements need to be in place. Staff also noted that the current regulation provides for the spreading of the materials in the same day or under emergency conditions you have to spread within 7 days so it is not a routine process and has to be justified. Staff noted that the concept of “emergency storage” was being considered for removal from the regulation.

- Item #4 – What does “affected party” mean? It was noted that this refers to the “adjacent resident” or “adjacent property”. It might also refer to someone who is not immediately adjacent.
- It was noted that on the next set of requirements, specifically I.B.25, that a “notarized” agreement is required. The question is then whether a “notarized” agreement should also be required in I.A.4?
- The TAC raised an issue with the removal of the concept of “emergency storage”. The TAC noted that during the last meeting the TAC agreed that the existing emergency storage requirements were not adequate so we replaced it with the new concept of “stockpiling for 1 to 14 days” to accommodate weather conditions. This is the new “emergency” provision, this is not routine storage. “Stockpiling” is not “routine” storage. “Routine Storage” should be the new category of “On Farm Storage for 14 to 45 days” and thereon. Therefore there should be no new requirements or additional restrictions for this “1 to 14” days stockpiling than exists for land application at that site.
- Staff noted that this was a very good conversation. Would like to continue the discussions on the remainder of the proposed categories/limitations. The discussions seem to show that there is not enough difference between the various proposed categories. A request was made that we need to continue discussions to resolve the issues of the differences between these categories to make sure that we hear everything. The TAC was encouraged to continue the discussions since it is unsure if we will be able to come to a consensus, but it is important that we hear from everyone. This information can be shared with program staff through the submittal of emails, if the ideas are not fully vetted during the TAC meeting so that we have your input. Email specific to Bill or Bryan.
- Biosolids Timeline – The TAC noted that the timeline is confusing and the timeline should be “1 to 14” days regardless, since the “48 hour – Odor” condition/provision is included. A comment was made that the time line should be shorter. A “1 to 7” day period was suggested for emergency situations. It was suggested that if the time line is shortened to “1 to 7” days that there be a condition included that provides for an extension of that time period to a maximum of “14” days should weather conditions prevent the application in the original “1 to 7” day period.
- General Comment: It was noted that the only “consensus” that came out of the last meeting of the TAC related to storage was that “emergency storage” should be for a maximum of 7 days. Yet, in today’s meeting a whole set of proposed changes was presented with little or no discussion or justification of what discussion items from the last TAC meeting, DEQ considered in the development of those concepts. It was noted by the TAC that there was not sufficient background provided on the thought process and ideas that DEQ staff went through to develop the proposed language under consideration. It was suggested that a lot of today’s discussions could have been shortened if some of that information was presented at the beginning of the discussions. In the future there needs to be some presentation by staff on what was considered and what was discarded from the previous TAC discussions.

The TAC moved into a discussion of the following criteria proposed for “On Farm Storage (14 to 45 days):

I.B. On Farm Storage (14 to 45 Days)

- 19) Liner under biosolids with a maximum permeability of 10^{-6} cm/sec and of sufficient strength to support operational equipment*
- 20) Only biosolids suitable for land application (Class A or B pathogen control) and established as having minimal odor [e.g. pH of 11 or more, or digested with a volatile solids level of 60 percent or less or other method approved by DEQ] shall be placed into stockpile or storage.*
- 21) Biosolids must be removed from the storage site within 48 hours if objectionable odors related to the stored biosolids are verified by DEQ at any occupied residence on surrounding property*
- 22) Biosolids shall be land applied by the 45 days from the initiation of on farm storage or moved to a storage facility*
- 23) The minimum buffer distances to property lines, occupied residences, and potable wells will be 500 feet.*
- 24) The minimum distance to surface waters that are flowing in a distinct channel shall be 500 feet.*
- 25) Buffer reduction of up to 250 feet if the affected party agrees to the reduction in writing and the agreement is notarized and submitted to DEQ*
- 26) Biosolids shall not result in water quality, public health or nuisance problems*
- 27) Biosolids shall be located to provide minimum visibility*
- 28) Best management provisions [e.g. surface water diversions] shall be utilized as appropriate to prevent contact with storm water runoff*
- 29) Biosolids stockpiles are to be checked by the generator or its agent at least every 14 days and after precipitation events to ensure that runoff controls are in good working order. Any observed excessive slumping, erosion or movement of biosolids is to be corrected within 24 hours. Any ponding or excessive odor at the site is to be corrected. Documentation of biosolids stockpile field checks shall be submitted with monthly reports on a form approved by DEQ*
- 30) Adequate daily records of biosolids quantities stored shall be maintained and reported monthly in accordance with the provisions of this chapter*
- 31) DEQ Notification*
- 32) Shall not occur in areas prone to flooding at a 25-year or less frequency interval as identified by the County Soil Survey*
- 33) Quantity shall be limited to the amount equivalent to the quantity that would provide the agronomic rate of application for approved sites within the property on which the storage site is located*
- 34) Maximum of 45 days storage, from placement in storage, during the months of November through March*
- 35) Maximum of 30 days storage, from placement in storage, during the months of April through October*
- 36) In karst topography, DEQ may require additional design measures*
- 37) If the average site slope is greater than 6%, adequate surface water diversion methods must be provided and maintained*
- 38) Biosolids must be removed from the storage site within 48 hours if objectionable odors related to the stored biosolids are verified by DEQ at any occupied residence on surrounding property.*

Comments made during these discussions included the following:

- On Farm Storage – Material there for a 14 to 45 day period. Appropriate to talk about additional performance standards/placement standards. Talking about a consistent amount of rain so that it might be appropriate to discuss the idea of providing a cover for the stored biosolids. There needs to be some kind of performance standard. In a BURC subcommittee they developed a recommendation for requirement of a “4 foot stacking height”. This recommendation was struck from the VDH regulations, but it might provide a good compromise performance standard in lieu of sampling requirements and consideration should be given to including it in the DEQ regulations.
- It was suggested that the requirement for a cover might be just one of the options that an applicator might decide to utilize but there might be others to prevent contamination of surface waters and to prevent objectionable odors, maybe even some of the conditions/criteria originally included on the previous list for “stockpiling”. Should not get locked into the use of a cover, if there are other options that could be used. It can be an extremely difficult and possibly expensive thing to use. The need for flexibility in choosing a BMP to use was stressed. The suggestion was made that “siting criteria” or the use of berms, silt fencing, etc. should be considered.
- A question was raised as to how these “flexible” BMPs would be chosen by DEQ and would DEQ have the authority to select or approve the use of specific - appropriate BMPs. Staff noted that we hear the questions but we are not sure that we can answer them now.
- A question was raised about what is meant by the term “on farm”. Staff noted that this was meant to mean the same farm and the amount of materials that would be applied to that farm. The intention was to look at contiguous tracts, not at a farm/field 10 to 20 miles down the road. A limit could be placed on the amount of material that could be “stored” on the site. A question was raised as to whether this applied to “leased land” that a farm is using in addition to his own acreage. It is for that farm only or for nearby farms. Staff noted that this was an area where there was a need for input from the TAC as to what should be covered. There is a need to define what is meant by “farm” for the purpose of these regulations.
- On Farm storage would have pre-approved criteria. Covers were not required and there was a suite of options that are being used. It was suggested that DEQ should identify the problems with the management practices that are currently being utilized so that the TAC could brainstorm on what could be done to improve the current practices. Do not need to get into detailed specifics in the regulation.
- Staff noted that the current discussions have now gone over the time proposed by staff. Don't think that we will be able to reach a consensus on these items and in all honesty the purpose of an Advisory Committee is to give advice and not necessarily to reach consensus. It doesn't look like we will get to a consensus on what we are talking about. The TAC was thanked for their input. That is really what we want to hear. It was suggested that unlike the “Expert Panel” where we needed to reach a consensus, we don't need to reach a consensus here with the TAC; we just need to make sure that we get everyone's input.
- A question was raised over when and whether we would be coming back to the storage issues. Staff will go back through the discussions and determine if we have enough input to proceed with the development of storage criteria or whether we might need to create a subcommittee to discuss. We just don't have enough time to spend 2 or 3 days on a single topic.
- It was noted that the issue of “storage” is the most controversial issue in the world of “biosolids”. The biggest fights in biosolids have always been over storage. It was suggested we should not rush through these discussions and if we need to take another session to finish these discussions then it would be a good use of time. The idea of moving this discussion to a subcommittee was not looked at favorably.

- It was noted that in the area of storage for 14 – 45 days that it is important to look at the farm operation as a whole, not at the individual parcels. If you take a smaller approach there will be more storage sites and therefore the potential of problems will increase.
- A question was raised over whether there is an actual site evaluation process for on farm storage or is it a paper exercise. There needs to be an effective process for an on-site evaluation. Staff responded that a lot of what happens is currently ill-denied. There needs to be a set of criteria that the inspector would be thinking about and looking at the time of site evaluation.
- Staff noted that a permit currently covers an entire county, but then you have sub units or farms within the permit. The easy way to define a farm is as being “contiguous”.
- It was suggested that a matrix dealing with a specific pollution prevention plan similar to that used for stormwater permitting should be considered.
- It was noted that in the list of criteria that items 38 and 21 are redundant. In addition, items 54 and 52 are also redundant.
- The timeline for on farm storage has two different time periods (“maximum of 45 days” and “maximum of 30 days”). If the category of storage criteria are to address “on farm storage for 14 to 45 days, then the time periods should be consistent (45 days).
- The idea of requiring a notarization for reduction of buffers has never been required and would create some hardships that are not needed.
- The concept of the TAC process was discussed. The thought that we are only here providing ideas and input and DEQ can do whatever they want to, we still have some unresolved issues where we don't know what staff is doing with the input and there is no draft of regulation language to see what is being done with the input. There has been not true feedback. It was noted that some TAC members were uncomfortable with the idea of spending so much time and effort and having unresolved issues. Staff responded that we are trying to be responsive, where we provide information ahead of time. We still have a lot of unresolved issues without seeing any draft regulation language. If you would rather see a draft regulatory language then we can do that. Staff noted that we are bringing items/pieces back to the TAC for their review following further discussion and evaluation of the TAC comments by program staff.
- It was noted that the TAC still had not gotten any further feedback on the “financial assurance” issues. Staff noted that this had been sent to a subcommittee. It was noted that this subcommittee had not been able to meet yet. The first meeting of the subcommittee is currently scheduled for March.
- The question was asked about the way that the TAC is receiving information for review and the idea of the provision of “red-line” versions of the proposed regulation language was raised. Staff noted that because of the number of issues that are interrelated that we have been hesitant to try to develop proposed regulation text when it might need to be revised based on the discussions on another related topic. It was noted that there are a number of interrelated topics that are being and will be discussed by the TAC. It was noted that all of the topics need to be worked into regulation language as part of our on-going discussions. It was noted that we want to make sure that the TAC has a complete version of the draft regulation prior to completion of the TAC discussions. Trying to blend a lot of topics and information together. It was noted that if the thought is to have draft language to the TAC as the discussions evolve then the current approach is satisfactory.
- The current approach is good. It was noted that the “monkey-wrench” for today's meeting was the narrative list of “storage” criteria that was provided to the TAC. It was noted that the preferable approach might have been to present these items as different ideas and have the TAC flesh out how and where they would be appropriately placed in the regulation. It was noted that

these discussions are not completed. Staff noted that the criteria listed in the storage list was a combination of discussions from past meetings and the language from VDH for the biosolids and what is in the DEQ version of the regulation. This was intended to get feedback from the TAC not as a final version.

- Staff noted the intent is to take the discussions and look at it in the context of the regulation. The idea is to look at a number of different topics and to hear all of the various viewpoints represented by the TAC and sort it out through staff discussions. This is no one saying that the proposed language is the way that it is going to be. All of the proposed language is up for discussion by the TAC.
- It was noted that the term “on farm” might not be an appropriate term to use, since this material is also used for forestry operations, golf course, etc. The term “on-site” storage was proposed.

ACTION ITEM: Staff will take the discussions on storage from today and try to place it into a regulatory language in context and return it for some review by the TAC.

OPEN CHAIR COMMENTS: Items discussed through the use of the “open chair” included:

1. It was suggested that the “open-chair” was not so open since the comment was germane to the discussion held earlier in this session. a) Bringing materials to the farm for a short period of time: the equipment would stage the materials as if it were being spread in the same day. For safety reasons the truck has to have solid, dry flat ground to be able to safely delivery the material. We are always conscious of the property that we are on. We don't want to be on ground that is too wet that would result in the ground being torn up. We are there as a courtesy to the farmer, we were asked to be there to provide a service to the farmer and will be as respectful to the land as possible. Need to minimize the requirements and restrictions that were discussed this morning. b) Farm Storage – On Site storage: those materials should be available to be spread on that farmers fields that the individual farmer controls. Also it was noted that they had all agreed two years ago with DCR that nutrient management would dictate/limit when biosolids were to be spread. We are going to have to store more materials in the winter time next year than before. We have to be more mindful and accommodating to having farm sites like this to store materials more freely and more frequently. c) Large facility: It would take a reasonable amount of time to remove materials if an odor problem arises. The regulation should provide for a reasonable time to remove the materials if needed.
2. Three points: a) EPA storage manual: Urge each of you to look over what is contained in the manual even though it is somewhat dated. b) Crusting: A heavy rain can cause a “biosolids” pile to move down slope. Extreme weather conditions need to be considered. c) Time: Large Water Treatment Plants have contingency plans for how to deal with materials if there is a major problem. Other practices need to be included and considered.
3. Maybe having the documents laid out for review the regulation materials to look at what needs to be worked on. With regard to storage facilities, health issues need to be considered. The human equation has been dropped from the equation. Want the process to be more informative regarding the storage for 45 days. The lines of communication need to be clearly identified as to how the public and the health department will be notified. There need to be strict regulations because it will be affecting individuals.
4. It was noted that anything greater than the 14 days “stockpiling” that there would be a permit process and a public notification process.
5. It was noted in relation to the larger facilities (storage facilities greater than 45 days) that the

requirement for removal of materials within a 48 hour period is impracticable and should not be included in the regulations. These would be addressed by local ordinances. Also there are alternative options rather than removal that could be used to address any odor issues at the larger facilities.

6. The idea that we have skipped over any discussions of “routine storage” when that is the category of storage probably causes the most problems. The concept of requiring a cover for storage for greater than 45 days was suggested. Another possibility would be the inclusion of a category for routine storage for less than 45 days.
 7. Notification should include but DEQ and the Health Department
-

3) “Odor” Informational Materials

Three of the items that had been distributed to the TAC for review prior to today's meeting included the following:

A. Discussion Considerations Regarding Odors

The following are suggested to be considered during the TAC discussion of odor management at wastewater treatment plants, prior to application, during application, and at storage sites where applicable. Some of these issues were raised by the expert panel; others are considerations in DEQ air or waste regulations.

- 1) Normal odor vs. Malodor (objectionable odor)
- 2) How does DEQ identify or measure odor
 - a) Subjective methods
 - b) Objective methods
- 4) Define “odor sensitive receptor”
- 5) Is the odor objectionable to individuals of “ordinary sensibility” or only odor sensitive receptors?
- 6) Duration of odor
- 7) Variables affecting odor
 - a) treatment
 - b) weather
 - c) season
 - d) etc.
- 8) Mechanisms for managing odor related to the source:
 - a) In-State generator with VPDES Permit requirements
 - b) Out-of-State generator
- 9) What requirements should be in place to mitigate odor?
 - a) Odor Control Plans?

- b) Buffers?
- c) Incorporation where appropriate?
- d) Removal?
- e) Lime addition (agronomic considerations)?
- f) Other?

B. State Water Control Law
Statutory Requirements Related to Biosolids Odor

1. § [62.1-44.19:3.O.](#)

The Board shall develop regulations specifying and providing for extended buffers to be employed for application of sewage sludge (i) to hay, pasture, and forestlands; or (ii) to croplands where surface incorporation is not practicable or is incompatible with a soil conservation plan meeting the standards and specifications of the U.S. Department of Agriculture Natural Resources Conservation Service. Such extended buffers may be included by the Department as site specific permit conditions pursuant to subsection E, as an alternative to surface incorporation when necessary to protect odor sensitive receptors as determined by the Department or the local monitor.

2. DEQ VPA Regulations Related to Biosolids Odor:

9VAC25-32-520. Sludge quality and composition.

C. Sludge treatment. Sludges shall be subjected to a treatment process sequence designed to reduce both the pathogen content and the solids content to the appropriate level for the selected method of management, such as land application. For such use options, the sludge treatment provided shall minimize the potential for vector attraction and prevent objectionable odor problems from developing during management.

9VAC25-32-560. Biosolids utilization methods.

B.3.c.(1) Surface incorporation may be required on cropland by the department, or the local monitor with approval of the department, to mitigate excessive odors when incorporation is practicable and compatible with a soil conservation plan meeting the standards and specifications of the U.S. Department of Agriculture Natural Resources Conservation Service.

B.3.d.(2) Extended buffer setback distances. For applications where surface applied biosolids are not incorporated, the department (or the local monitor with approval of the department) may require as a site-specific permit condition, extended buffer zone setback distances when necessary to protect odor sensitive receptors. When necessary, buffer zone setback distances from odor sensitive receptors may be extended to 400 feet or more and no biosolids shall be applied within such extended buffer zones. In accordance with 9VAC25-32-100 and 9VAC25-32-490, the board may impose standards and requirements that are more stringent when required to protect public health and the environment, or prevent nuisance conditions from developing, either prior to or during biosolids use operations.

9VAC25-32-590. Standards for agricultural use.

B. Agricultural use standards involve regulation of the following:

6. Standards for processing biosolids involving treatment process sequences for (i) pathogen reduction treatment and (ii) reduction of organic matter to minimize odors and reduce vector attraction.

9VAC25-32-610. Biosolids treatment.

A. Stabilization. Biosolids treatment processes are primarily designed to increase the solids content of the

biosolids by separation and removal of liquid and are designed to stabilize the solid fraction through biochemical conversions that inactivate pathogens and reduce vector attraction characteristics and the potential for odor production. Such treatment should be designed to improve the characteristics of the biosolids for a particular use/disposal practice, increase the economic viability of using a particular practice and reduce the potential for public health, environmental and nuisance problems.

Excerpt from TABLE 4. “EXAMPLE OF REPORT FOR SUBMISSION TO FIELD OFFICES”

(If nuisance problems of odors or problems with uniform applications develop, the appropriate regional offices of the Virginia Department of Environmental Quality shall be notified.)

Upon such notification, were any operational changes made? Yes __No __*

**Specify the methods utilized to comply with treatment/application requirements on a separate attachment.*

3. DEQ Air Regulations Related to Odor:

The Air Regulations refer to stationary sources. The regulation specifically states that the odor standard does not apply to infrequent emissions of odors.

Article 2

Emission Standards for Odor (Rule 4-2)

9VAC5-40-130. Applicability and designation of affected facility.

A. Except as provided in subsection C of this section, the affected facility to which the provisions of this article apply is each facility that emits odor.

B. The provisions of this article apply throughout the Commonwealth of Virginia.

C. The provisions of this article do not apply to accidental or other infrequent emissions of odors.

Statutory Authority

§§ [10.1-1307](#) and [10.1-1308](#) of the Code of Virginia.

Historical Notes

Derived from VR120-04-0201, eff. January 1, 1985.

9VAC5-40-140. Standard for odor.

No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility any emissions which cause an odor objectionable to individuals of ordinary sensibility.

9VAC5-50-140. Standard for odorous emissions.

A. The owner shall use the best available control technology as approved by the board for the control of odorous emissions.

B. No owner or other person shall cause or permit to be discharged into the atmosphere from any affected facility and odorous emissions in excess of that resultant from using best available control technology, as reflected in any condition that may be placed upon the permit approval for the facility.

4. Air Statutory Requirements Related to Odor

§ 10.1-1307. Further powers and duties of Board.

A. The Board shall have the power to control and regulate its internal affairs; initiate and supervise research programs to determine the causes, effects, and hazards of air pollution; initiate and supervise statewide programs of air pollution control education; cooperate with and receive money from the federal government or any county or municipal government, and receive money from any other source, whether public or private; develop a comprehensive program for the study, abatement, and control of all sources of air pollution in the Commonwealth; and advise, consult, and cooperate with agencies of the United States and all agencies of the Commonwealth, political subdivisions, private industries, and any other affected groups in furtherance of the purposes of this chapter.

B. The Board may adopt by regulation emissions standards controlling the release into the atmosphere of air pollutants from motor vehicles, only as provided in Article 22 (§ [46.2-1176](#) et seq.) of Chapter 10 of Title 46.2.

C. After any regulation has been adopted by the Board pursuant to § [10.1-1308](#), it may in its discretion grant local variances therefrom, if it finds after an investigation and hearing that local conditions warrant. If local variances are permitted, the Board shall issue an order to this effect. Such order shall be subject to revocation or amendment at any time if the Board after a hearing determines that the amendment or revocation is warranted. Variances and amendments to variances shall be adopted only after a public hearing has been conducted pursuant to the public advertisement of the subject, date, time, and place of the hearing at least 30 days prior to the scheduled hearing. The hearing shall be conducted to give the public an opportunity to comment on the variance.

D. After the Board has adopted the regulations provided for in § [10.1-1308](#), it shall have the power to: (i) initiate and receive complaints as to air pollution; (ii) hold or cause to be held hearings and enter orders diminishing or abating the causes of air pollution and orders to enforce its regulations pursuant to § [10.1-1309](#); and (iii) institute legal proceedings, including suits for injunctions for the enforcement of its orders, regulations, and the abatement and control of air pollution and for the enforcement of penalties.

E. The Board in making regulations and in approving variances, control programs, or permits, and the courts in granting injunctive relief under the provisions of this chapter, shall consider facts and circumstances relevant to the reasonableness of the activity involved and the regulations proposed to control it, including:

1. The character and degree of injury to, or interference with, safety, health, or the reasonable use of property which is caused or threatened to be caused;
2. The social and economic value of the activity involved;
3. The suitability of the activity to the area in which it is located; and
4. The scientific and economic practicality of reducing or eliminating the discharge resulting from such activity.

F. The Board may designate one of its members, the Director, or a staff assistant to conduct the hearings provided for in this chapter. A record of the hearing shall be made and furnished to the Board for its use in arriving at its decision.

G. The Board shall submit an annual report to the Governor and General Assembly on or before October 1 of each year on matters relating to the Commonwealth's air pollution control policies and on the status of the Commonwealth's air quality.

§ 10.1-1308. Regulations.

A. The Board, after having studied air pollution in the various areas of the Commonwealth, its causes, prevention, control and abatement, shall have the power to promulgate regulations, including emergency regulations, abating, controlling and prohibiting air pollution throughout or in any part of the Commonwealth in accordance with the provisions of the Administrative Process Act (§ [2.2-4000](#) et seq.), except that a description of provisions of any proposed regulation which are more restrictive than applicable federal requirements, together with the reason why the more restrictive provisions are needed, shall be provided to the standing committee of each house of the General Assembly to which matters relating to the content of the regulation are most properly referable. No such regulation, shall prohibit the burning of leaves from trees by persons on property where they reside if the local governing body of the county, city or town has enacted an otherwise valid ordinance regulating such burning. The regulations shall not promote or encourage any substantial degradation of present air quality in any air basin or region which has an air quality superior to that stipulated in the regulations. Any regulations adopted by the Board to have general effect in part or all of the Commonwealth shall be filed in accordance with the Virginia Register Act (§ [2.2-4100](#) et seq.).

B. Any regulation that prohibits the selling of any consumer product shall not restrict the continued sale of the product by retailers of any existing inventories in stock at the time the regulation is promulgated.

C. Any regulation requiring the use of stage 1 vapor recovery equipment at gasoline dispensing facilities may be applicable only in areas that have been designated at any time by the U.S. Environmental Protection Agency as nonattainment for the pollutant ozone. For purposes of this section, gasoline dispensing facility means any site where gasoline is dispensed to motor vehicle tanks from storage tanks.

5. DEQ Waste Regulations Related to Odor:

The waste regulations refer to the air regulations and require an odor control plan if the odor (from a stationary facility) causes a nuisance or hazard.

9VAC20-80-280. Control of decomposition gases (at a landfill).

D. Odor management.

1. When an odor nuisance or hazard is created under normal operating conditions and upon notification from the department, the permittee shall within 90 days develop and implement an odor management plan to address odors that may impact citizens beyond the facility boundaries. The permittee shall place the plan in the operating record and a copy shall be submitted to the department for its records. Odor management plans developed in accordance with Virginia Air Regulations ([9VAC5-40-140](#)), [9VAC5-50-140](#) or other state air pollution control regulations will suffice for the provisions of this subsection.
2. The plan shall identify a contact at the facility that citizens can notify about odor concerns.
3. Facilities shall perform and document an annual review and update the odor management plan, as necessary, to address ongoing odor management issues.

9VAC20-101-140. Operations.

D. Dust, odors, and vectors shall be controlled so they do not constitute nuisances or hazards.

The Waste Statute's only reference to odor is in regard to transporting waste by water; it requires the use of containers to prevent emission of odor.

CAFO (animal waste) regulations do not include odor or odor control.

C. Excerpt on Odor from HJR 694 Biosolids Expert Panel Final Report December 22, 2008

2. Do odors from biosolids impact human health and well-being and property values?

Panel Discussion

Panel members agreed that there is a perceived relationship between odor and health issues and that reducing odor issues will likely reduce concerns about health impacts. The Panel recognizes that odors from biosolids could potentially impact human health, well being and property values, but could not confirm such an impact or the extent of such an impact based on the current body of scientific literature and information presented directly to this Panel.

The Panel received comments from individuals relating to health effects and biosolids odors. The most commonly reported complaint about biosolids is related to odor, as documented by the VDH and DEQ. An informal review of the complaint record maintained by the VDH from 2004 through 2007 indicated that odor complaints averaged about 26 per year. DEQ received 29 complaints about odor during the first ten months of 2008, out of a total of 79 documented complaints. Many of these complaints were received prior to an actual land application of biosolids in anticipation of malodors. An informal review of the resolution of these complaints indicated that in most cases VDH inspectors and/or the local biosolids monitors reported that the odors they observed were considered typical for properly treated biosolids, and were not particularly malodorous. In investigating odor complaints during 2008, DEQ inspectors found no instances of permit non-compliance related to the land application procedures that would have caused odor problems, and no formal or informal compliance actions have been initiated to address the regulatory requirement that biosolids shall not have nuisance odors. The Panel did not explore the DEQ regulatory standards for odor.

Odors from volatilized ammonia and reduced sulfur compounds are the most noticeable irritants from land-applied biosolids and are usually most noticeable during actual application. These odors generally dilute with distance and dissipate over time.

Not all biosolids have malodor, i.e. offensive odors. Well managed biosolids production and land application can prevent and mitigate odor problems. Poorly managed biosolids production and land application can create malodors. Malodors also may occur during handling, transporting and storage of biosolids.

Biosolids generators serving Virginia and their land application contractors have implemented quality control procedures and best management practices in an effort to prevent malodorous biosolids from being transported to the field and from being applied if they do arrive. Malodorous loads may be rejected and transported back to the generator for additional processing or to a landfill for disposal. Malodors can be an indicator that regulatory requirements for the treatment of biosolids have not been

met. DEQ field inspectors and the local biosolids monitors are authorized to halt any land application that does not meet state regulations regarding treatment.

Wastewater treatment plants and land application contractors should use current technology and best management practices to reduce odors from land application of biosolids. As the Panel learned during its visit to the Henrico Water Reclamation Facility and the nearby biosolids land application demonstration, there have been significant advances in technology and processes to reduce odor and its migration off site.

The issue of a perceived impact of biosolids on an individual's quality of life is more difficult to assess, since the "quality of life" is subjective and self-defined. The Panel believes there are common sense and practical approaches to such quality of life issues, which are addressed in the recommendations.

The Panel determined that it did not have the resources to undertake a valid study of the impact of biosolids on property values. Two Panel members volunteered to investigate the property value issue to determine if such an association existed. These two members worked with the Virginia Association of Realtors to conduct an on-line survey, which produced results that the Panel considered inconclusive based on sample selection and validity of the questions asked. The Panel could not make any determination as to whether or not biosolids odors had any impact on property values.

Panel members discussed the possibility of initiating a new general permit for municipal biosolids generators that would include a substantive outreach program with the hosting community to deal with malodorous biosolids and how this material would be managed on site. The general permit could require an odor control plan and site inspections. The odor control plan should ensure that the generator is looking at critical control points to minimize odors, and has a communication plan in place to minimize impact on persons who might smell the odors. A voluntary Environmental Management System (EMS) program also could be developed by DEQ, similar to the current Virginia Environmental Excellence Program (VEEP). Municipal biosolids generators participating in the EMS would improve the biosolids product, resulting in less odor.

The Panel makes the following recommendations based on the discussion above:

Panel Recommends: The following concepts should be considered by the TAC in making their recommendations regarding changes to DEQ biosolids regulations:

1. Currently DEQ has the statutory authority to apply site-specific conditions to land application permits at the time of issuance (§62.1-44.19:3.E of the *Code of Virginia*). This allows DEQ to accommodate neighbors of farmland permitted to receive biosolids by expanding, if appropriate, the standard buffers from property lines and occupied dwellings. DEQ staff should consider odor issues and concerns when permitting sites and regulating the application at permitted sites. The TAC should examine the DEQ regulations pertaining to this issue.
2. Odor issues and concerns should be considered in the development of buffer distances. The TAC should examine the DEQ regulations pertaining to this issue.
3. DEQ is required to have procedures in place for receiving and responding to public comments on permit applications or amendments (§62.1-44.19:3.C.10 of the *Code of Virginia*). The TAC should

examine the DEQ regulations pertaining to this issue.

4. The Panel notes that DEQ has the statutory authority to establish site-specific permit conditions, including expanded buffers, to minimize the impact on odor-sensitive receptors (§62.1-44.19:3.O. of the *Code of Virginia*). The statute also states that incorporation of the biosolids into the soil may be required when practicable and compatible with a soil conservation plan (§62.1-44.19:3.N. of the *Code of Virginia*). The TAC should examine the DEQ regulations pertaining to this issue.

6. By regulation, DEQ could require any generators of biosolids who land apply in the state to have odor control plans. These plans would include elements to both minimize odors through wastewater plant processes and to minimize application of odorous biosolids in the field through appropriate communications. DEQ could preclude application of biosolids from any generator who does not have odor control plans. The TAC should examine the DEQ regulations pertaining to this issue.

Panel Recommends: That treatment facilities voluntarily use an EMS to address such quality considerations such as odor. An EMS encourages a participant, the generator in this case, to document its environmental performance, surpass minimum regulatory requirements and strive for continual improvement. The VEEP provides wastewater agencies with incentives for actions that go beyond regulatory requirements. DEQ should investigate ways that self-improvement protocols for biosolids production and recycling can be incorporated into Virginia's existing VEEP. Incorporating elements of a biosolids EMS within VEEP would provide Virginia's wastewater treatment agencies with meaningful incentives to effectively manage biosolids production to mitigate malodors.

4) Odor Discussions (Neil Zahradka)

Neil Zahradka, Manager of DEQ's Office of Land Application Programs started the afternoon session with an acknowledgment to the TAC that we are done with the storage discussion in this TAC, but we are moving onto a discussion of "odors" for today's meeting. He noted that the NOIRA did not address the issue of "odor", but the Expert Panel did. He also noted that the first two questions to the Expert Panel were #1 Health and #2 Odor. When the Expert Panel report was being drafted there was much discussion on what needed to be part of the "health" portion of the Expert Panel Report and what fell into the "Odor" section of the report. There is not a definitive line between health and the rest of these topics, but in order to address the technical aspects of odor control it is helpful to separate them. We are going to talk about the issues that were referred to the TAC. He noted that the Panel did not review DEQ regulatory standards related to "odor", so those references were distributed to the TAC for review as indicated above. It is the job of this committee to discuss. The other topic is that not all biosolids have offensive or "malodor". We want to look at the panel recommendations. The recommendations first talks about buffers and the permitting process and then the site specific permit conditions on how you control odors, and finally odor control plans. The topics that we can separate out for discussion are: "What causes biosolids odors?" and "How can you mitigate those "odors"? When start trying to define what an "odor sensitive receptor" is? A good starting point is to look at existing regulatory requirements.

Christina Woods provided an overview of the existing regulatory requirements related to "odor". (Note: This material was provided to the TAC prior to the meeting and is provided as references in the

materials noted above.) The TAC asked for the statutory references related to the materials provided above.

ACTION ITEM: Program staff will provide the TAC with the Statute references for the existing regulatory requirements related to “odor”.

Jerome Brooks with the DEQ Office of Air Compliance provided an overview of the existing “air” regulations related to the control of “odors”. (Note: This material was provided to the TAC prior to the meeting and is provided as references in the materials noted above.) He noted that these existing regulations only apply to “stationary sources” (Article 2. /4.4.2). He noted that the mornings discussions related to “storage” may have an impact on whether the existing air regulations would impact biosolids. The definition of “stationary source” refers to storage for a period of beyond 45 days. If the biosolids would be stored for longer than 45 days the air regulations may apply. May be able to be considered a “borderline stationary source”. Need to define what “temporary storage” is. In the rule making process this needs to be looked. It was noted that there are no “odor” regulations related to CAFO.

Discussions related to the impact of “air regulations” included:

- The need to define what “best available technology” means.
- Staff noted that “best available technology” referred to “economically and technically feasible method available to control emissions. A cost versus benefit analysis would have to be done. But there would also involve some kind of emission. Would have to exceed some kind of threshold for the emission.
- “Odor” is not really an emission. It is a “nuisance”.
- Best available technology would not apply but is there were enough complaints and it was determined by Panel that this is a nuisance and could be a health hazard then some kind of bmp would be recommended to address the situation.
- This particular type of operation has not been modeled to determine the existence of an “odor” that was determined to be a nuisance.
- It was noted that the facilities that usually fell under the air regulations were “Rendering Plants”.
- Only applies to “stationary sources”.
- It was noted that the real difference is that these are “infrequent” storage operations rather than a long term detached storage facility.

Angela Neilan conducted a “facilitated discussion” on “How do you control odor?” The following outline of topics was provided as a preliminary guide for the discussions:

- Normal odor vs. Malodor (objectionable odor)
- How does DEQ identify or measure odor
 - Subjective methods
 - Objective methods

- Define “odor sensitive receptor”
- Is the odor objectionable to individuals of “ordinary sensibility” or only odor sensitive receptors?
- Duration of odor
- Variables affecting odor
 - treatment
 - weather
 - season
 - etc.
- Mechanisms for managing odor related to the source:
 - In-State generator with VPDES Permit requirements
 - Out-of-State generator
- What requirements should be in place to mitigate odor?
 - Odor Control Plans?
 - Buffers?
 - Incorporation where appropriate?
 - Removal?
 - Lime addition (agronomic considerations)?
 - Other?

The TAC was asked to look at the issues related to “odor” control and odor management at wastewater treatment plants, prior to application, during application, and at storage sites where applicable. The discussions included the following:

- The Expert Panel recommendation was to develop an “odor control plan”. The question is “How can we control odor?” At the end of the day, “How do we mitigate odors?”
- From the Expert Panel report shows that an informal review of the complaint records that in most cases that the odors were those normally expected with “biosolids”. It appears that there were only one odor complain every to days and in fact some of these complaints occurred prior to application (in anticipation of the application of biosolids). So actually less than every 10 days. Is this really a big problem? Based on the complaint record it doesn't appear to be.
- But there are cases where “malodors” do occur and the regulations do not adequately address those instances. In the VDH regulations it was really subjective on how they dealt with “bad odors” issues. What mechanisms need to be used in trying to address where there is a problem? We are trying to make sure that we take care of the bad actors.
- A question was raised as to “how do you define it as a bad “odor”? Also, “What is a “normal” biosolid odor? There may be different perceptions as to what a “bad odor”/“malodor” is.
- It was suggested that “normal” and “malodor” needs to be defined. Need to be able to define the difference. “Malodor” has been defined in other states. There should be criteria to dictate

what a “malodor” is. It was noted that there needs to be recognition by everyone that you are never going to be able to get rid of the odors associated with biosolids, just like any other agricultural products. Farms have odors. That is the nature of farming.

- Biosolids applications are not done every day and that they usually occur during a short period of time. There need to be criteria to deal with “malodors” and how complaints are handled.
- A question was raised as to what a “verified” odor complaint is?
- There is odor associated with biosolids. The issue is how do we deal with the occurrences of “malodors”?
- How do we define “malodors” and what are normal biosolids odors and how do we address them?
- Duration of odors need to be considered. It was noted that if there is a “malodor” then there shouldn't be any duration. It should not be applied.
- If there is a “malodor” associated with a load of biosolids then it shouldn't be put down in the field for application. There need to be criteria developed to address those occurrences.
- There is a need to define “standard nuisance odor”.
- Processes at the plant can be used to reduce “odors”. Need to mitigate odors at the plant. The plant's sludge management plan should include an odor management control plan and there needs to be a plan to manage odor if it goes to the field. Materials can also be taken to a landfill or another facility for additional treatment.
- The use of “odor control plans” to identify and provide the mechanisms to reduce odors/minimize “malodorous” biosolids was recommended.
- Odor management plans also need to be in place to address those instances where a “malodorous” biosolid inadvertently reaches a field for application.
- Generators are the primary caretakers of the odor issue. There are many steps that a generator can take to minimize odor. Lime mixing and dosing is used in some facilities. There are many sources of odors in biosolids, i.e., sulfur, polymers, etc.
- It was noted that plants that land apply biosolids should have some kind of “odor control plan”. Any biosolids VPA permittee needs to be subject to having an “odor control plan”. Odors can vary from plant to plant and over time. In the field, “odor” is very variable and there are occasions when a load arrives at a field that is “malodorous”. Some generators have empowered their contractors and permittees and field inspectors to reroute a load of biosolids that arrives at the field and is determined to be “malodorous” to a landfill or another facility for further treatment.
- There should be a regulatory basis for not applying “malodorous” biosolids without penalty to the land applier.
- There need to be two types of “odor management plans”. One to address the odor issues “In Plant” and the other to address the odor issues “In Field”. There needs to be a set of procedures on how do you deal with odor issues if there is a problem.
- Not all biosolids create an “odor”. It was noted that it would be very advisable for DEQ to do a better job than VDH in pinpoint where the “odor” problems are coming from. What was the source of the “malodorous biosolid”? Need to zero in on where the problem is.
- It was suggested that the specifics for an odor control plan should not be specified in the regulation. A request was made by staff for suggestions as to what a minimum set of elements needed for an odor control plan should be.

ACTION ITEM: TAC members should develop and submit their suggestions as to the minimum

elements that should be included as part of an “odor management/control plan”.

- It was suggested that one of the elements should be the identification of “alternative disposal options”.
- It was noted that VDH had used a requirement that the “bad actors”/“Malodorous” biosolids should/could only be applied in “remote locations”.
- It was noted that the guidance for the “odor control plan” should show what DEQ would approve.
- The use of “field olfactometer”/“nasal rangers” was discussed as a way to quantify odors. Items such as concentration, duration, tone (offensive), sniff test, variability, and dilution were discussed.
- “Odor” is determined by a person of “normal sensitivities”.
- It was noted that Penn State had done some research in the area of the use of “field olfactometers”. However, the results show that they are not precise enough for use in regulations.
- It was noted by DEQ staff that the use of “nasal ranges” had been evaluated by the agency in the past. It was determined that their use “lacked practical enforceability”.
- Need to keep condition/criteria in the plan to deal with “clunker” batches. If it is rejected then the plan should identify “what to do with it”.
- It was also noted that if a load is malodorous then it probably should be incorporated immediately, but then the issue becomes what to do with the other loads coming from the same source.
- It was also noted that the odor of a load of biosolids can change during transit.
- Need to look at the factors needed to verify that there is actually a “malodorous” condition. Length/time/duration of the odor needs to be included in a checklist.
- It was noted that if an “odor control plan” was required and if the generator doesn't follow the approved procedure to address “malodors” then it should be enforceable.
- It was noted that the Expert Panel recognized that it all subjective. The real question is “How do you separate “normal odor” from “malodor”. “Normal/acceptable odor” might still cause problems to certain individuals. People respond differently.
- There needs to be a yard stick to use to gage the impacts of the use of “best available technology”, i.e., an approved operating sewage treatment plant.
- In the past the responses to “odor complaints” have been unacceptable by VDH. DEQ has to be responsive and send someone to the field to investigate the complaint. Additional buffers might be needed. Can't require the little guys to use Best Available Technology, they might just have to use longer buffers.
- Biosolids have different odors. No one would say that they smell good. There is always going to be someone that complains about the odors associated with biosolids.
- There is a need to recognize that even if there is only one person that is complaining about the odor. Their concerns cannot be dismissed as a trivial complaint.
- Need to be responsive to the complaints.
- Need to be able to address and respond to “odor complaints” ASAP not days later. Need to investigate the complaint.
- The odor control plan should address “normal odor”; “odor within proximity”; “malodor”.
- DEQ's odor training process was discussed. (“Calibration of noses”) We have a good number

of inspections that have taken training. Don't currently have the regulatory requirements to require the training at this time.

- Odor sensitive receptors needs to be defined and needs to be identified prior to application.
- It was suggested that an “odor sensitive receptor” might be defined as an “individual of ordinary sensibilities”. The term “odor sensitive receptor” is in the statute.
- Need to be able to make a distinction between a “frivolous” complaint versus an “odor sensitive receptor”.
- The process was discussed regarding the amendment of the law to protect the individual who has a medical condition and the development of the database to track those health complaints.
- The question was raised as to what does the database tell you. It was noted that there is a major overlap between odors and health effects.
- It was noted that the ASA Handout contained an example of the “complaint log”.
- The VDH database was discussed. It was noted that there was a lot of text involved with the VDH database that makes it hard to quantify the complaints. It was noted that the DEQ version of the database uses a lot of check boxes so that the complaint categories can be counted. It was noted that the database also does not identify the number of individuals that may be included in the logged complaint.
- It was noted that it is important to identify the source of the biosolids in the complaint log.
- The DEQ database logs each call and each person calling is logged into the system and the inspector is also included as part of the record.
- Notification of a pending application is important.
- Need to consider all complaints for time, weather conditions, duration of the odor, source of the biosolids, etc.
- It was noted that there should be a standardized list of questions that are asked for each complaint so that the compliant can be accurately and completely logged into the database. It was suggested that the ASA form might be a useful form to use for this purpose.

ACTION ITEM: The TAC was asked for their suggestions and recommendations for the list of standardized questions that should be asked of each complaint.

- It was noted that the DEQ database currently has a little over a year of data so they have not been able to get into an evaluation of whether there is a pattern to the complaints or the sources of the biosolids that are responsible for the complaints.
- It was suggested that the idea of an “odor sensitive receptor” was more of a pre-application concept. The language was used to protect the receptor before the application. At the time the statute was passed the idea of “odor sensitive receptor” was used to identify a building, a nursing home, not an individual. The focus was on not on individuals but on groups of individuals (schools, hospitals) that would be identified during the permitting process. It was suggested that maybe as part of the odor management plan in the field there could be some measures that would be identified for that individual that calls with an odor complaints, so that there are identified measures that could/would be used for the duration of the application where there is a verified problem with biosolids. Need to identify within the context of the odor management plan to deal with those “odor sensitive receptors” who have problems related to the application.
- It is easy to identify the facilities. The difficult part is identifying those “odor sensitive receptors”. The terms that we use need to be identified: “odor sensitive receptor”; “person of

normal sensibilities” (Air Regulations); “person who reacts to an odor – nonspecific symptoms”.

- It was noted that there is a difference between “sensitive” versus an “allergic reaction”. It is very hard to measure whether the symptoms are coming from an “odor” or from something else. People have different sensitivities.
- It was noted that under the Air Regulations that an “Odor Panel” made up of individuals of ordinary sensitivities from different walks of life (neighborhood/private citizens/industry) is used to verify the presence of a “malodor”. They take the individuals out to the site to determine if the odor is objectionable. It is subjective.
- It was noted that we are crossing the line between the odor issues versus the health issue. It was suggested that with a health affect the question should be “Is it ordinary for the individual to be affected.
- It was noted that in the Air Program that they try to time their site inspections regarding a complaint to as closely match the conditions present at the time of the complaint. Take down all of the information provided by the individual making a complaint. They also contact the generator/facility regarding whether there were any variations in the performance of the facility at the time of the complaint.
- It was noted that the science is not at the level to be able to characterize an odor. Actions should be identified in the “odor control plan”. It was noted that the actions probably can't be specified, but we should be able to rely on those actions chosen by Waste Water Treatment Plants with a review by DEQ, to determine what actions are required.
- It was noted that there needs to be some balance in the process. Both the land owner and the farmer need to be considered in the process.
- There need to be identified options to deal with odor complaints.
- The process for addressing a complaint from the public about biosolids odors needs to be an equitable and clearly defined process. How do we evaluate the complaint? There need to be identified options for resolving the complaint. There needs to be a clear list of possible actions. If there is a perceived odor then there should be a clear list of actions and solutions. We need to be clear on what and how we will evaluate a complaint and be clear on what actions that will be taken in relationship to a complaint. It was noted that we don't need to get into a situation where DEQ has to decide whether a complaint is valid or not valid.

OPEN CHAIR:

- It was suggested that the term should be “unsupported” or “unfounded” instead of “frivolous”. There may be a correlation between the number of complaints and larger buffers. It was noted that the actual physical conditions resulting from the biosolids should be noted instead of just the statement “I don't feel good”.
- The most positive item from today's meeting is that the idea of an “odor management plan” was offered up by the industry. This is a great idea only if it is included as part of the permit under the regulations. It needs to be developed as part of the permit process. Not discretionary/not part of guidance. The idea of moving someone away from a site during the application process is a good idea. If the “odor management plan” concept is utilized then the issues of increased buffer sizes, incorporation, etc. may become less of an issue in the future. It was noted that everyone once in awhile has “clunker” loads that are “malodorous”. Sometime all of the right things can be in place and an issue occurs higher in the system that will cause the “malodorous”

problem. Good discussion. The idea of not dismissing the citizens, not even one, is the right approach.

10) Malodorous Discussion(Neil Zahradka)

Neil Zahradka introduced the topic of dealing with “malodorous” odors on the site. The discussions included the following:

- Staff noted that at the end of the day what we are looking for is something that the inspectors can have a regulatory basis to address the handling of “malodorous” materials. The land appliers shouldn't be penalized. We are looking for regulatory language that allows for dealing with “malodorous” biosolids.
- What do we do with the “malodorous load?”
- If you do have a bad load that shouldn't be on that site then it could be taken to a “remote” site.
- It was noted that the options to deal with “malodorous” loads during the permitting process. It was suggested that if there is a “malodorous” load from a generator that normally/otherwise meets the requirements of the land application regulations then the options should be 1) take to a more remote location; 2) taken to an alternate treatment facility or a disposal landfill; 3) should be immediately spread and incorporated; 4) buffers should be defined. Remote sites should be identified in the permit. It was suggested that there may not be any more zero impact sites still left in Virginia.
- It was noted that most “Forestry” sites are considered remote, but there can still be impacts.
- There needs to be a definition of “remote”.

ACTION ITEM: Staff will determine if there is a definition of remote in the DEQ regulations and route that definition to the TAC.

- An option for dealing with a “malodorous” load that has already been deposited at the site for land application could be for it to be immediately applied and incorporated, so that it is covered up as quickly as possible.
- It was suggested that the permittee should be allowed to propose different options for dealing with malodorous loads as part of their “odor control plans”. As part of that plan they could identify “remote” sites that could be used and this could be included as part of the inspection process. In addition the possible use of “specific landfills” to handle the “malodorous” materials. It was suggested that the regulations should not be specific on what the requirements/specifications should be, but have enforceable criteria, i.e., an odor management plan.
- It was suggested that there are: “no odor”; “normal odor”; and “clunker loads”.
- It was suggested that there needs to be a “back-up” plan build into the permit and the “odor management plan”.
- It was suggested that what might be needed is a “contingency operations plan” in place in case there is a problem with the biosolids received in a load for application at the farm. This plan should identify the options that are available.
- It was noted that the best person on the site to make a decision on whether or what option should be used if there is a “malodorous” load would be the DEQ inspectors.
- The Odor Control Plan that the land applier is using would specify what options were approved

- for that applicator i.e., Contact DEQ.
- It was suggested that this should be part of the Certified Land Applier Certification Criteria. The Certified Land Applier has certain criteria that they have to address. The requirement to carry out the requirements of the Odor Management Plan and would be required to contact DEQ.
- If there is a really bad load that has been dumped on the site, do you really want to wait 24 hours to decide what to do? If you are incorporating on the site as the normal practice, then why not just incorporate. It was noted that the requirement to immediately incorporate the materials. This would go into practice if a DEQ inspector was not available.
- The EPA Guidance specifically identifies the need to have a “back-up” plan to deal with “malodorous” materials.
- It was noted that it needs to be recognized that there are existing contracts in place that may take awhile to make the changes that are being suggested.
- Is a “Bad Load” just one truck or is it possible that there are multiple trucks. If you immediately incorporate that load and allow the remaining loads to continue to arrive or do you halt the remaining shipments.
- With an “odor management plan”, a Certified Land Applier could be the one that would call DEQ and the Generator. The DEQ Inspector would make a site inspection and make sure that the “Implemented Operations Plan” has been implemented properly.
- Both DEQ and the Generator would need to be notified.
- Ideally any problems should be caught at the plant, but there are instances where the materials comes out of different sources within the plant, i.e., from the plant, from a silo, from storage, etc.
- Also, problems can arise from materials coming out of an applicators own storage, so that there could also be differences in the materials and any associated odors.

11) Public Comment

- Susan Trumbo/Recyc Systems – Can't predict when we will have an odor complaint. I'm hearing to the landfill. But landfills are a pre-approval process. It will take 6 weeks to get an approval, and there is a cost involved. Taking it to a landfill is not an automatic solution. Can only take stabilized materials to a landfill, if the material is “malodorous” then it is likely not stabilized.
- Alan Rubin – Under the 503 Rule, the materials have to be “stabilized”. Very optimistic about today's discussions. Assuming the “odor management plan” is real and actually gets implemented, and then a lot of the current DEQ options (tools), such as increased buffers, incorporation will become unnecessary. We are not inventing new regulations; we are looking for consensus on a way to deal with valid complaints. The impact on local communities is important. We need a holistic way to deal with valid complaints.
- Kathy Crockett – Goochland doesn't have landfills, we have Convenience Centers. That possibility needs to be part of the management plan and some research needs to be done on how to address this situation. Thinks that the TAC is doing a good job.

12) Next TAC Meeting (Neil Zahradka/Angela Neilan)

The next meeting will deal with processes here that will transition into the next meeting discussions on health issues. The next meeting will start out with “responding to odor complaints”.

ACTION ITEM: The TAC was directed to review the “Health” section of the Expert Panel report as preparation for the next TAC Meeting.

The Next Meeting of the TAC is scheduled for March 20th from 9:30 A.M. to 4:00 P.M.

13) Meeting Adjournment

The meeting was adjourned at 4:00 P.M.