Sewage Handling and Disposal Regulations Advisory Committee

Meeting Minutes

February 24, 2012

Members in attendance: Vincent Day, Chairman, Colin Bishop, Greg Evanylo (via video conference in Christiansburg),Raymond Freeland, David Fridley, John Harper, Dan Holmes, Robert Lee, Mike Lynn, Robert Mayer (alternate for Curtis Moore),Valerie Rourke, Jim Pyne and Bill Timmins. VDH staff Allen Knapp, Eric Aschenbach, Jim Bowles, Marcia Degen, Kemper Loyd, Peter Basanti, Patrick Bolling, Dave Tiller, and Dwayne Roadcap. Visitors included Mike Burch, Nature Works; Chris Beatley, Premier Tech; Scott Currie, VAMAC; Tom Ashton, AMC; Amy Pemberton, VDH; Anish Jantrania, NCS.

Administrative

Meeting was called to order by Chairman, Vincent Day at 10 am.

Initial comments were made by Allen Knapp who introduced new member, Dan Holmes with the Piedmont Environmental Council. Dan is the representative for the Virginia Conservation Network. Roundtable introductions of all members followed.

Agenda approved with modifications. See modified agenda at end of minutes. (Attachment 1)

The minutes from the last meeting were discussed. DEQ has modifications. Those modifications will be sent out and discussed at the next meeting. The approval of the draft minutes is tabled until then.

Old Business

1. Regulatory Update on AOSS Regulations

- Implementation Manual – Marcia Degen presented the table of contents from the Interim Implementation Manual. It is intended to address the most confusing issues. A more detailed implementation manual will be developed later. The goal is to have it available for internal VDH review in about 2 weeks
    - Bob Lee asked about cleanup of VENIS data.
    - Allen Knapp noted that the schedule is to have all data in by 2014
    - Valerie Rourke requested that the guidance discuss Spray irrigation systems with a design capacity less than 1,000 gpd that are permitted by VDH due to the confusing language in the regulation that suggests that DEQ is permitting all spray irrigation systems.
    - Bob Mayer asked if VDH is going to be defining standard engineering practice. Suggestion that there be some guidance to maintain consistent practices among districts. Suggestion to continue use of certification statement on the application. Clarification of DPOR issue that any participation by PE makes the overall job a PE job. Manual should reflect/refer to DPOR policy. Some local health districts (LHDs) are

saying that they don't want to see "mixed designs." Allen discussed that authority to enforce licensure requirements is mixed—e.g., well drillers vs. onsite system designers.
    - Mike Lynn noted that some LHDs will not accept designs with a stamp from an AOSE and a PE regardless of whether it falls under the exemption or not. He understood that DPOR says that if an engineer is involved at all, then the PE is responsible for the project, including the completion statement. Ray Freeland noted that his experience has been the same as Mike's.
    - Allen noted that if the exemption cannot be used, then it does fall under the PEs responsibility
    - David Fridley noted one clarification we need it is where a PE does a small part, DPOR sees it as a PE design, whether it falls under the exemption or not.
    - Ray – some LHD have stated that they don't want a mixed stamp design.
    - David F – concerns extend beyond AOSSs so maybe this should not be addressed in this guidance
    - Allen – but the recommendation is noted. It's a problem in other programs as well. We need to consider and see how we want to handle. Maybe need to consider joint DPOR guidance with interpretations
    - Bob Lee noted that the manual needs to include compliance strategies to help maintain consistency.
- Discussion of AOSS regulations
    - Bob Lee - Need to determine now what data is needed. We should know by now where every AOSS is in the state. VDH needs to identify how well it can deal with overall program given resources—at least set priorities. Operation permits need some boiler plate language that includes responsibilities, program requirements. Engineering permits will need special conditions on Operation Permits. Also need to know how to handle design changes once in operation—based on number of bedrooms, with only two people in 5 BR house, system doesn't work properly, systems may need to be tweaked to reduce treatment. Who can do it? How? Why? Can an operator do that without designer?
    - Correction of reporting errors. In Loudoun County, Bob Lee said regulators will not change reports. Reports with errors were available to public which leads to confusion. Changed to look at latest report if revised report submitted to correct error.
    - If you are licensed in VA, you have an ethical responsibility to report if you see something being done wrong. So, if VDH employee sees an installer who is not licensed installing a system, they are required to report to DPOR. Allen asked if DPOR OSE regulations have same ethical requirement statement as PE regs.
    - Need to have way to have info to see how well we're doing
    - Verifying licensure of installers. If you see someone who is not properly licensed – If you are licensed regardless of the licensure, you have a certain ethical responsibility to report things being done wrong. If EHS sees an installer who is not licensed, then they should report to DPOR. VDH should look at it from a licensed/ethical staff level. Allen asked if ethics language is in the new AOSE regulations? No one was able to answer the question although most thought the ethics language was there.
- Technical Issues in AOSS regulations
    - Marcia reviewed the process that will be used for addressing GW Monitoring and Hydrogeologic study required in AOSS regs.
        - Step One: obtain background information from Virginia Chapter of American Institute of Professional Geologists – In process

        - Step Two: assemble stakeholder group (geologists, engineers, AOSEs, owners, VDH, DEQ) (Note A. Jantrania expressed interest to be on this group)
            - Review materials
            - Develop goals
            - Develop minimum criteria
            - Develop recommendations
        - Step Three: send draft out for review internally and externally
        - Step Four: Finalize policy
    - Jim Pyne noted that the bigger issue is how to do a study for the 'life of the structure' ; concern over function vs operate. Marcia noted that the intent is for the site to be able to continue to accept the wastewater.

2. Other Old Business:

Follow up to earlier discussion.

Allen presented some info about data in VENIS There are about 10,700 alternative systems in data base with around 3,000 systems with at least one report in the system. There are 420 systems with multiple reports. 387 listed as out of compliance. % out of compliance 3.6%

Bob Lee – this is the type of information that we want to use for tracking the implementation

No other old business.

3. New Business

1. Inform of use of EN-12566-3 (European) protocol for small wastewater treatment units

Kemper Loyd provided a table that compared the main points of the NSF 40 protocol and the EN protocol (see attachment II). The EU has no pass/fail criteria and only reports % removal. The wastewater used in the EN testing is much stronger than the NSF wastewater. 3 systems have been proposed for secondary level in VA based on EU. VDH has applied removal efficiency from all of the test data to maximum NSF loading to determine whether unit meets requirements for US households because the EN wastewater is much stronger in concentration. Flow accepted based on EU nominal flow for testing.

2. Discussion of assigned rated capacity vs. VDH regulatory flows (average vs. peak flows and their interaction with VDH regulatory flows of 150 gpd/bedroom)

Background: Nominal testing at NSF is at the manufacturer's rated capacity and NSF applies peak factors, but the nominal flow is not exceeded on a daily basis. Units tested under NSF 40 are accepted at the NSF 40 rated capacity as a peak capacity so they match up with the VA regulations which provides for 150 gpd/bedroom on a peak basis. Currently we are accepting the EN at the nominal flow. The EN protocol produces an average and a peak flow. The peak flow is based on a 2 day peak at 150% of the rated capacity and then a 2 week recovery period. The question is should VDH accept units tested under the EN protocol at the average or peak flow?

Colin Bishop: There is an error in the handout, the peak flow period is 2 weeks long, not 2 days and EN tests during the peak period, but NSF does not. Colin believes that for their unit, it would result in the unit being rated as a 2 bedroom unit if based on average flow and a 3 bedroom unit if based on the peak flow.

Marcia Degen: VDH will confirm with CEN that the peak flow is tested for 2 weeks.

Mike Lynn: is it necessary for VDH to establish ratings? Isn't it up to the designer to evaluate them individually. Ex – bulking of units

Allen – but this is general approval so what would that look like?

Mike: We'd still have a list of units that are TL2 approved and refer to NSF 40 for the rated capacity and not assign a bedroom number

Jim: If looking for a general approval criteria then you have to look at the probability of failure. There are more design variables to be considered than there are addressed in the protocols so the probability of failure is probably the same between the two.

Bob Lee: The importance of what an operator can do is important and should be considered.

Bob Mayer: Dr. Drewery (ODU) talked about it 10 or 15 years ago. The system needs to be designed for the range of the expected capacity. We should recognize that O&M and operation is a problem. Hard to call equivalent without some further evaluation.

Bob Lee– Accepts one protocol or the other, but don't accept portions of both protocols.

Colin – NJ says conflict between policy and regulation, then can go with manufacture's rated capacity.

Bob M – should be able to show that engineering way is same as NSF 40.

Allen- so if we just listed without a flow – what does the review process look like? What does the reviewer do if they call 3 bedroom vs. 4 bedroom?

Bob – the designer would include the mfg rated capacity.

Marcia noted that the default is NSF 40 and that we are looking for equivalents to that test protocol. The questions being raised are good questions, but beyond what we are trying to tackle today. At this point we are just trying to determine what is the committee recommendation regarding rated flow capacity under the EN protocol given that the peak flow is tested for 2 days or 2 weeks.

Marcia posed the following question: Should we accept the peak flow as the rated capacity for units tested under the EN protocol assuming that the peak flow test period is maintained for two weeks? 7.5 for; 3 abstain

[postscript: email from CEN confirmed that the peak of 150% is only initiated for 2 days in the EN-12566-3 protocol.]

3. General Assembly update:
Allen:
942 Lingamfelter – would have prohibited local government from requiring bond or other financial assurance for AOSS – being referred to housing commission for study – Dan – Lingamfelter is

developing a work group –primary concern- how to deal with folks who won't or can't fix their systems

1071 Hugo – exemption for AOSS from O&M installed prior to 1/1/2010 – need to be visited by operator once every 2 years – sunset date for 2014 – tabled and referred to Housing Commission

1231 – Orrock – inspections at time of installation – can petition VDH to inspect when private consultant refuses to approve – owner where private does not inspect or denies the installation – allows owner to petition VDH to do own review of installation – passed both houses with no nay votes

1291 – reorganization bill – SB 678 – both had language that would have eliminated SHDR appeal review board. – those have been modified to keep appeals board

SB 2 Claims bill – Martin – denied indemnification fund – time barred – relief bill would award owner 14,000 – comes up next week

356 – Deeds – exemption from O&M for AOSS located in a county with a population density of 50 persons or less per square mile. Failed to report out of committee

442 – Obenchain – proposed changed to 32.1-163.6 – frequency of inspection 1/2y minimum for small and changed scale for large system; failed to report out of committee – close vote 12-10

HB 1262 – Poindexter & SB 662; conventional installers – would eliminate the license requirement for conventional installers – as amended – 10 years of experience – exempt from test; other says 5 years for exemption to take test

Mike asked for clarification on 1231 – would have to be declined by the original inspector before could come to VDH. Allen: if homeowner says no one will inspect, but the original designer is not available.

4. TMDL Update

Eric Aschenbach, new TMDL Coordinator for VDH, presented a summary of Chesapeake Bay TMDL activities.

- The Watershed Implementation Plan (WIP) is now in Phase II. A draft was submitted in November. The primary goal was to get local input and buy in. DCR led the effort to engage local governments. A final Phase II WIP is being developed now and is addressing comments from EPA. See link for comments: http://www.epa.gov/chesapeakebaytmdl/ Mostly EPA is looking for accountability. VDH has provided milestones that include staff training and numerical targets for VENIS data input.
- VDH made an initial submittal to EPA on the number of N reducing units installed in Virginia in December 2011. That submittal was conservative (470) and was based mainly on the FAST units as those appear to be the only NSF 245 rated units that had been installed at that time. [Note M. Burch has a spreadsheet of all FAST units in Virginia if it is helpful to VDH]
- VDH is also working with EPA on a Septic BMP Panel. The Panel has been assembled from representatives of several states and academics. Eric provided the BMP protocol, the list of the

members of the panel, and the charge for the panel. See Attachments III, IV, and V. This panel hopes to have additional BMPs approved and available for the onsite sector.

Bob Lee – Will VDH use Environmental Technology Verification (ETV)protocols as well for N reducing units?
Allen: -When we started we were very permissive on what we would accept, but later erred on the side of caution and we reported a low number. We would like to approach this very methodically and are working on possible reciprocity with other states.

Bob noted that mass drainfields do not put out as much N such as the Lenah Farms project.

Allen – we are to report large systems separately

Other New Business:
Vincent set the next meeting dates: Thursday May 17, 2012 and Thursday, July 19th. Additional information on locations will follow.

Meeting adjourned at 12:30 pm

Attachment I

Sewage Handling and Disposal Advisory Committee Meeting

AGENDA

Date: February 24, 2012
Time: 10 am to 2 pm
Location: Main Floor Conference Room
VDH Main Offices
109 Governor's St.; Richmond VA 23219

Administrative

1. Introduction of New member
2. Approve Agenda
3. Review and Approve Minutes

Old Business

1. Regulatory Update on AOSS Regulations
   - Implementation Manual Status and Topics
   - Implementation of the AOSS final rule – Discussion
     a. Information which should be maintained for program performance
     b. Program expectations with current resources
     c. Problems which require statutory changes
     d. Operation Permit a. boilerplate language; b. special conditions e.g engineered systems
     e. Design changes once in operation - who, what, how, etc.
     f. Correction of reporting errors. How?
     g. Update on DPOR discussions on verifying licensure of installers
   - Technical Issues in AOSS Regs
     a. Groundwater Monitoring Plan
     b. Hydrogeological Study Related to Direct Dispersal
     c. Review of Process to be Used
2. Other Old Business

New Business

1. Review of General Assembly activity related to AOSS program…Knapp
2. Bay TMDL: General Update and EPA BMP Septic Panel Update…Aschenbach
3. Inform of Use of the ~~EN 12655-3~~ EN 12566-3 Small Wastewater Treatment Unit Testing Protocol …Loyd **[moved to topic #1]**
4. Discussion of assigned rated capacity vs. VDH regulatory flows (average vs. peak flows and their interaction with VDH regulatory flows of 150 gpd/bedroom) (Request to move to beginning of meeting by Colin Bishop)…Degen **[moved to topic #2]**
5. Other New Business

Adjourn

Attachment II: NSF 40 certification vs. EN 12566-3 protocol

Attachment III: BMP Protocol

Attachment IV: Members of Septic BMP Panel

Attachment V: Charge for Septic BMP panel

Comparison - NSF/ANSI vs. CEN Performance Testing		
Characteristic	**NSF/ANSI Standard 40 Class I**	**CEN (European) Standard EN 12566-3**
Performance Test Duration	26 Weeks May extend to ≤ 34 weeks if necessary to collect minimum required number of data points.	38 Weeks
Influent Characteristics	BOD_5: 100-300 mg/L (30-day avg.) TSS: 100-350 mg/L (30-day avg.)	BOD_5: 150-500 mg/L (or 300-1000 mg/L COD) TSS: 200-700 mg/L KN: 25-100 mg/L (or 22-80 mg/L NH_4-N) TP: 5-20 mg/L
Daily Dosing Schedule	35%: 6:00 a.m. to 9:00 a.m. 25%: 11:00 a.m. to 2:00 p.m. 40%: 5:00 p.m. to 8:00 p.m.	30%: Hours 0 to 3 (e.g. 5:00 a.m. to 8:00 a.m.) 15%: Hours 4 to 6 (e.g. 8:00 a.m. to 11:00 a.m.) 40%: Hours 13 to 14 (e.g. 5:00 p.m. to 7:00 p.m.) 15%: Hours 15 to 17 (e.g. 7:00 p.m. to 10:00 p.m.)
Nominal Load	100% ±10% (30-day avg.) of stated daily capacity	100% of stated daily capacity + Peak Flow Discharge - 1/week at Hour 13 Additional 200, 400, 600, or 800 L (varies with system size) added at rate of 200 L/3 minutes
Testing Schedule	16 weeks: Nominal Loading 7.5 weeks: Stress Sequence "Wash Day" (followed by 1 week Nominal Loading) "Working Parent" (followed by 1 week Nominal Loading) "Power/Equipment Failure" (followed by 1 week Nominal Loading) "Vacation" 2.5 weeks: Nominal Loading	6 weeks: Nominal Loading 2 weeks: "Underloading" Stress 6 weeks: Nominal Loading + "Power Breakdown" Stress 2 weeks: "Low Occupation" Stress 6 weeks: Nominal Loading 2 weeks: "Overloading" Stress 6 weeks: Nominal Loading + "Power Breakdown" Stress 2 weeks: "Underloading" Stress 6 weeks: Nominal Loading
Sampling	Influent: BOD_5, TSS, and pH 5 day/week sampling (target) 24-hour, flow proportioned samples Effluent: $CBOD_5$, TSS, and pH 5 day/week sampling (target) 24-hour, flow proportioned samples 3 random samples - 1 during Stress Sequence and 1 during each Nominal Loading period - assessed for Color, Odor, and Oily Film	Influent: BOD_5 (or COD), SS, KN (or NH4-N), and TP 1 day/week sampling (target) 24-hour, flow proportioned samples Effluent: BOD_5 (or COD), SS, KN (or NH4-N), and TP 1 day/week sampling (target) 24-hour, flow proportioned samples
System Operation	Operated per manufacturer's standard instructions	Operated per manufacturer's standard instructions
System Maintenance	Not allowed	Maintained per manufacturer's standard instructions
Sludge Removal	Not allowed	Allowed per manufacturer's standard instructions
Evaluation of Treatment Performance	Data Requirements: ≥ 96 effluent data points collected during all periods of discharge Passing Criteria: Effluent must meet the following: $CBOD_5$: ≤ 25 mg/L (30-day avg.) ≤ 40 mg/L (7-day avg.) TSS: ≤ 30 mg/L (30-day avg.) ≤ 45 mg/L (7-day avg.) pH: 6.0-9.0 SU Color: Reported (1:000 dilution) but no criteria Odor: Non-offensive (1:1000 dilution) Oily Film: Not observed (1:1000 dilution)	Data Requirements: ≥ 20 effluent data points collected during periods of Nominal Loading (with and without "Power Breakdown" Stress) ≥ 6 effluent data points collected during "Overloading" and "Underloading" Stress periods Passing Criteria: None Average removal efficiencies reported for BOD_5 (or COD), SS, KN (or NH_4-N), and TP during periods of Nominal Loading Individual removal efficiencies for BOD_5 (or COD), SS, KN (or NH_4-N), and TP during "Overloading" and "Underloading" Stress periods stated in report

Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model

March 15, 2010

Introduction

The Chesapeake Bay Program (CBP) uses loading estimates to quantify expected amounts of nutrients (nitrogen and phosphorus) or sediment loads to water from specific land uses or point sources. Changes in estimated loads from a particular piece of land can occur in four ways: 1) A change in the land use (e.g. forest instead of grassland), 2) an adjustment based on an estimate of effectiveness of a best management practice (BMP), 3) a measured reduction in direct load to the land use, and 4) a measured reduction from a treatment process. Effectiveness estimates and direct load reductions to land result in percentage adjustments on a per acre basis (as opposed to an adjustment in concentration or a load per farm operation) used by the CBP to modify the existing baseline loading for particular land uses and practices. Loads from point sources can be adjusted based on a new treatment process or practice.

The Water Quality Goal Implementation Team (WQGIT) is responsible for approving the loading rates, and percentage adjustments to these rates, used in the Chesapeake Bay Watershed Model (CBWM). The CBP Executive Council's 2009 commitment to meet two-year milestones that accelerate the pace of Chesapeake Bay restoration, and the need to quantify practices to be used in Watershed Implementation Plans (WIPs) that will achieve Total Maximum Daily Load (TMDL) allocations, will likely spur innovation and identification of new BMPs.

Direct load reductions and reductions from treatment process often can be estimated, or measured, with a relatively high degree of accuracy. However, due to the variability of available data, loading rates and effectiveness estimates for nonpoint sources are based largely on best professional judgment. Since the definitions and values used for both loading and effectiveness estimates have important implications for the CBP and the various partners, it is critical that they be developed in a process that is consistent, transparent, and scientifically defensible.

This document contains three sections addressing the following process steps:

I. Determine the need for a review process,
II. Review process:
    a. For new estimates
    b. For existing estimates or treatment processes
III. Chesapeake Bay Program review and approval

I. Determine the Need for a Review Process for:

A. New estimates
As the Executive Order and Bay TMDL processes unfold, the CBP expects to receive numerous requests to evaluate innovative technologies and practices. It will be necessary to review and prioritize these requests. Requests can be initiated by the following groups:

- A CBP source sector Workgroup
- A jurisdiction
- A different group/organization/agency *if* a CBP Workgroup agrees to sponsor the recommendation through the CBP review process

Requests should be submitted to the Chair of the WQGIT who will then route requests to the Watershed Technical Workgroup (WTWG) and to the relevant source sector Workgroup. These Workgroups will determine if sufficient credible data is available for a full review process. This determination will be made within 60 days from the date received by the WQGIT Chair. The decision to proceed will include a timeframe for completion of the review that will be based on the complexity of the review and workload issues. Proposed technologies and practices that have been identified by jurisdictions in their Watershed Implementation Plans (WIPs) will be given highest priority.

B. Existing estimates or treatment processes
The WQGIT will evaluate existing loading and effectiveness estimates on a three year schedule, or as appropriate, to determine if a review is warranted. Such reviews can be prompted by the availability of new information, such as a new treatment process. Reviews can also be initiated if current estimates produce illogical model outputs or if there is reason to believe that they were developed using inaccurate information.

IIA. Review Process for New Estimates

Convene a review panel
The source sector Workgroup, in consultation with the WTWG and WQGIT Chair, will identify and convene a panel of experts on the relevant topic. Each request for review should include suggestions for such panel members. The panel must include at least six individuals; three recognized topic experts and three individuals with expertise in environmental and water quality-related issues. It is also important that the review panel has appropriate geographic representation.

Expectations of the review panel
The review panel will develop definitions and loading or effectiveness estimates. The panel will work with the source Workgroup and WTWG to develop a report that addresses the following:

- Identity and expertise of panel members
- Land Use or practice name/title
- Detailed definition of the land use or practice
- Recommended nitrogen, phosphorus, and sediment loading or effectiveness estimates

    - Discussion may include alternative modeling approaches if appropriate
- Justification for the selected effectiveness estimates, including
    - List of references used (peer-reviewed, etc)
    - Detailed discussion of how each reference was considered.
- Land uses to which the BMP is applied
- Load sources that the BMP will address and potential interactions with other practices
- Description of pre-BMP and post-BMP circumstances, including the baseline conditions for individual practices
- Conditions under which the BMP works:
    - Should include conditions where the BMP will not work, or will be less effective. An example is large storms that overwhelm the design.
    - Any variations in BMP effectiveness across the watershed due to climate, hydrogeomorphic region, or other measureable factors.
- Temporal performance of the BMP including lag times between establishment and full functioning (if applicable)
- Unit of measure (e.g., feet, acres)
- Locations within the Chesapeake Bay watershed where this practice is applicable
- Useful life; effectiveness of practice over time
- Cumulative or annual practice
- Description of how the BMP will be tracked and reported:
    - Include a clear indication that this BMP will be used and reported by jurisdictions
- Identification of any ancillary benefits or unintended consequences beyond impacts on nitrogen, phosphorus and sediment loads. Examples include increased, or reduced, air emissions.
- Suggestion for a review timeline; when will additional information be available that may warrant a re-evaluation of the estimate
- Outstanding issues that need to be resolved in the future and a list of ongoing studies, if any
- Operation and Maintenance requirements and how neglect alters performance

Additional guidelines:

- Include negative results
    - Where studies with negative pollution reduction data are found (i.e. the BMP acted as a source of pollutants), they should be considered the same as all other data.
- Include results where the practice relocated pollutants to a different location. An example is where a practice eliminates a pollutant from surface transport but moves the pollutant into groundwater.

Data applicability

Determining which data should be used to develop loading and effectiveness estimates is a critical step. When considering sources of data, the panel must decide: 1) if the data is appropriate, and 2) how much influence each data source should have on the final estimate. Each of these decisions should be discussed explicitly in the final report for each data source.

Data sources should be characterized using Table 1 (below).

Table 1. Data source characterization matrix

	High confidence	**Medium confidence**	**Lowest confidence**
Applicability [a]	Definition matches technical specifications	Generally representative	Somewhat representative
Study location [b]	Very representative of soils and hydrology	Generally representative	Somewhat representative
Variability [c]	Relatively Low	Medium	Relatively High
Number of studies [d]	Many	Moderate	Few
Scientific support [e]	Operational scale research (peer reviewed)	Research scale (peer reviewed)	Not peer reviewed ("gray" literature)

a = How well does the practice match any established technical standards (according to participating professionals).
b = How well does the location of the reported practice match conditions in the Chesapeake Bay watershed (e.g. soil type, hydrologic flow paths, and species composition)?
c = How much variability is there in the reported results?
d = The number of studies included in the reference.
e = Has the source been peer reviewed in a scientific setting, and was the work done on an operational or a smaller (research/small plot) scale?

The panel should also consider the following:

- Was the data generated from a BMP design and implementation consistent with those found in the Chesapeake Bay watershed?
- How does is the duration of the experiment impact the operational effectiveness of the practice?
- Do results reflect changes in pollution reduction benefits over the lifetime of the practice?
- What parameters were sampled and monitored (paired watershed study, grab samples, etc.)?
- What, if any, assumptions were made during the experiment and conclusion?

Once the panel has characterized a data source, they must determine how much influence (i.e. 'weight') the data should have on resulting estimates. For example, peer-reviewed publications will usually have more weight than non-reviewed sources. However, the exact

influence of a particular data source will also consider other factors, such as those listed in the questions above, which the panel will consider.

IIB. Review Process for Existing Estimates or Treatment Processes

If approved by the WQGIT Chair, the review of existing estimates can be conducted within a source Workgroup in consultation with the WTWG. This approach should reduce the amount of time necessary to conduct the review because the definition(s) have already been developed, a background of available data already exists, and issues of how the practices or land use is incorporated into the CBWM have been addressed. Reviews of existing estimates should follow the guidelines listed in IIA above except that a separate review panel is not convened and the information generated is added to the existing support documentation for the estimate.

III. Chesapeake Bay Program Review and Approval

Review panel recommendations will follow a specific procedure through the CBP (listed below). Each recommendation must first receive approval from the indicated group before it can be reviewed by the next group listed in the process.

1. Review by the relevant source sector Workgroup. This group will be responsible for reviewing the technical components of the recommendation, ensuring that all of the pollutant(s) source loading(s) or BMP pollution reduction mechanisms have been included.

2. Review by the WTWG. This group will be responsible for analyzing the modeling components of the recommendation(s) and determining that the tracking and reporting data that is needed to receive credit is available in the appropriate Chesapeake Bay jurisdiction(s) thereby ensuring that no double counting is occurring.

3. Review by the WQGIT. This group will be responsible for reviewing the process used and the recommendation's consistency with other approved BMP effectiveness estimates.

Schedule

- **December:** Panel selection.
- **January:** Panel conference call. Tt starts literature search.
- **Early February:**
  - Interviews and collection of program info.
  - Summary of interviews.
  - Citations/abstracts for retrieved literature-first draft.
  - WWTWG call update
- **Mid February:** Summary of information.
- **Late February:** Panel delivers initial findings to WWTWG.
- **Early March:** Preliminary information for use in Phase 2 WIPs.
- **March–June:** Panel continues research on practices. Prepares for reviews and approvals.
- **June:** Final recommendations from Panel.
- **June/July:** WWTWG Review.
- **July:** WTWG Review.
- **July/August:** Approval meeting for WQGIT.
- **August/September:** Final report

Panelists

Name	Affiliation	Email
Joyce Hudson	U.S. Environmental Protection Agency	Hudson.Joyce@epamail.epa.gov
Robert Goo	U.S. Environmental Protection Agency	Goo.Robert@epamail.epa.gov
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Jeff Moeller	Water Environment Research Foundation	jmoeller@werf.org

Onsite Wastewater Treatment Systems Nitrogen Reduction Technology Expert Review Panel Charge

The main charge for the panel is to review available science on the pollutant removal performance treatment practices that can be used to derive nutrient removal rates for individual practices.

The panel is specifically requested to:

- Provide a definition for each treatment practice and the qualifying conditions under which a credit can be received

Beyond this specific charge, the panel is asked to;

- Determine whether to recommend whether an interim removal treatment rates be established prior to the conclusion of the panel for WIP planning purposes in March 2012
- Recommend procedures for reporting, tracking and verifying the recommended retrofit credits.
- Critically analyze any unintended consequence associated with the credit and any potential for double or over-counting of the credit

The treatment practices suggested by the states to WWTGW are:

- Shallow placed dispersal systems using gravity flow
- Secondary treatment to shallow placed dispersal systems using gravity flow
- Denitrification unit coupled with Shallow placed, pressure dosed dispersal systems

The treatment practices suggested by panel members are:

- Sand mounds
- Shallow drip technologies

This list of practices can be amended. Additional practices should be currently in use or have the potential to be in use in the Chesapeake Bay watershed. This list should be finalized before the March meeting, to give panelists enough time to review documentation before recommendations are due. Panelists are encouraged to think outside the box. Any changes to the method of modeling can be proposed to the CBPO, however, the primary objective of the panel is to review documentation and provide concise definitions and percent reductions.

During the review process, only the treatment technologies need to be researched. Factors of nitrogen attenuation in soil from the edge of drainfield to the edge of stream will be reviewed by the CBPO and another expert panel later in 2012 or early 2013. Soil types could be considered for certain technologies in this review if the soil type is one of the major factors determining the treatment rates

Documents will be separated into categories so that subpanel of panelists can review the documentation in their area of expertise and then report back to the panel as a whole during conference calls. Panelists are expected to be on at least one subpanel.

Throughout the process, detailed records need to be kept. In addition, panelists should follow the *Protocol for the Development, Review, and Approval of Loading and Effectiveness Estimates for Nutrient and Sediment Controls in the Chesapeake Bay Watershed Model*.