Sewage Handling and Disposal Regulations
Climate Change Subgroup
April 14, 2022 – 1:00 to 3:00
Meeting Summary

Meeting Location:

5th Floor Small Conference Room, 109 Governor Street, Richmond, Virginia, 23219

Virtual Participation Available Via WebEx

Attendees:

Lance Gregory	Anne Powell	Skip Stiles	Curtis Moore
Anna Killius	Colin Bishop	Samuel Gaber	David Fridley
Patrick Fanning	Danna Revis	Josh Hepner	Joshua Anderson
Valerie Rourke	Anthony Creech	Brenden Rivenbark	Molly Mitchell

1. Hazard analysis and critical control points model.

Mr. Gregory began the meeting with an overview of the 7 principles of the Hazard Analysis and Critical Control Points (HAACCP) model:

Principle 1: Conduct a hazard analysis.
Principle 2: Determine the critical control points (CCPs).
Principle 3: Establish critical limits.
Principle 4: Establish monitoring procedures.
Principle 5: Establish corrective actions.
Principle 6: Establish verification procedures.
Principle 7: Establish record-keeping and documentation procedures.

The preliminary steps for the HAACCP model include assembling a team, describing the product and processing method, describing the intended use of the product, and developing a flow diagram for the process. In this case, the produce is onsite sewage systems. The processing methods are: 1) conventional onsite sewage systems dispersing septic tank effluent 18 inches or more from seasonal high water table (or closer for older onsite sewage systems); 2) alternative onsite sewage systems dispersing treatment level 2 or 3 effluent as close a six inches from seasonal high water table; or 3) alternative onsite sewage systems with direct dispersal to groundwater providing a higher level of treatment than treatment level 3 with no setback to seasonal high water table.

Mr. Fanning asked what the cost would be for an onsite sewage system that meet direct dispersal. Mr. Gregory noted that estimates of the cost to comply with direct dispersal requirements are $70,000 to $80,000 for a single family home, but no systems have been installed.

Mr. Stiles asked if a time element should be included with the product of onsite sewage systems.

Mr. Gregory commented that conventional systems last 30 to 40 year because, whereas alternative systems could last indefinitely with proper operation and maintenance.

Mr. Fridley noted that another important element of onsite sewage systems is treatment in addition to dispersal.

Mr. Moore noted it may be better to use terms like true water table or tidal influence as opposed to seasonal high water table.

The subgroup also discuss intended used of onsite sewage system products: individual residences, community based systems, and non-residential systems.

Mr. Gregory then shared the general process for onsite sewage system permits. (see attachment 1).

Mr. Moore noted that laboratory sampling of alternative systems is an assurance that treatment is effective. He also noted that certification letters state that VDH can void a certification letter if conditions have changed.

Ms. Revis mentioned that certification letter language could be changed to address high risk coastal areas with other conditions that apply.

A. Conduct a hazard analysis.

The workgroup then discuss potential hazards related to the impacts of climate change on onsite sewage systems. Discussion is captured in attachment 2.

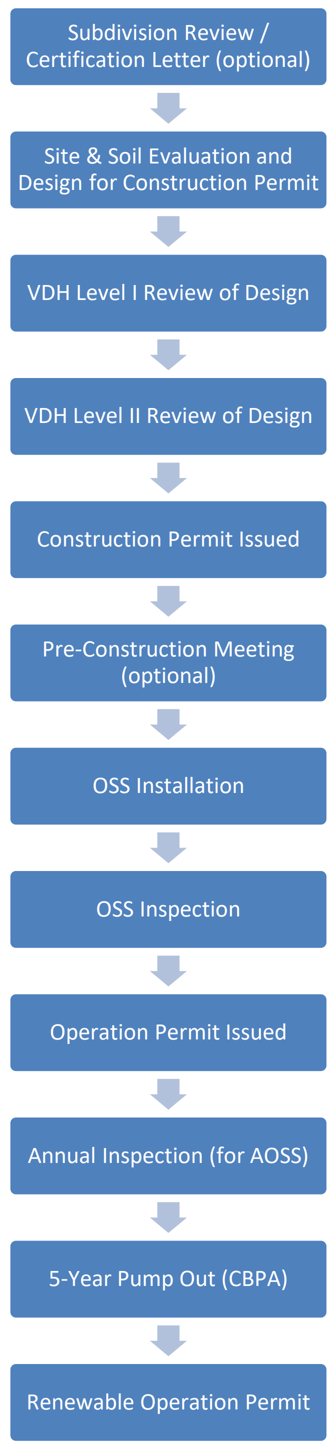
B. Determine the critical control points.

The workgroup then began discussion on potential critical control points related to the impacts of climate change on onsite sewage systems. Discussion is captured in attachment 2.

Agenda

1. Hazard analysis and critical control points model. (100 minutes)
    a. Conduct a hazard analysis.
    b. Determine the critical control points.
    c. Establish critical limits.
    d. Establish monitoring procedures.
    e. Establish corrective actions.
    f. Establish verification procedures.
    g. Establish record-keeping documentation procedures.
2. Next steps for subgroup. (15 minutes)

Attachment 1



Attachment 2
Sewage Handling and Disposal Regulations Revisions
Climate Change Subgroup
Hazard Analysis and Critical Control Points Outline

U.S. FDA HAACP Principles and Applications
https://www.fda.gov/food/hazard-analysis-critical-control-point-haccp/haccp-principles-application-guidelines#guide

HAACP Principals

1. Conduct a hazard analysis.
2. Determine the critical control points (CCPs).
3. Establish critical limits.
4. Establish monitoring procedures.
5. Establish corrective actions.
6. Establish verification procedures.
7. Establish record-keeping and documentation procedures.

Before You Start HAACP

Describe the product and processing method(s).
Product: (properly operating – disposal and treatment) onsite sewage systems
Processing methods:

- Conventional onsite sewage systems disperse STE within 18 inches of SHWT (true water table or tidal influence). (Timeframe – 30 to 40 years, but subjective to the use of home)
- Alternative onsite sewage systems (AOSS) disperse TL-2/TL-3 effluent within 6 inches of SHWT. (Timeframe – potentially can last as long as the treatment unit functions properly)
- AOSS disperse direct dispersal to ground water (higher treatment than TL-3) with no required standoff to SHWT. (Timeframe – potentially can last as long as the treatment unit functions properly)

Describe the intended use of the product.
Normal uses of onsite sewage systems:

- Individual residences. (varying levels of risk for some homes)
- Community based systems. (varying levels of risk for some community systems)
- Non residential facilities.
    - Different types of businesses. Some business serve high risk population (e.g. nursing homes, clinics, hospitals, residential assisted living facilities)

Intent is to treat wastewater to ensure all sewage is disposed of in a safe and sanitary manner to protect public health and the environment.

Develop a flow diagram for the process.

- Approval of site and soil evaluations for subdivision/certification letter (optional).
- Site/soil evaluation and design for construction permit.
- VDH level 1 review of design.
- VDH level 2 review of design (10%).
- Construction permit issued.

- Pre-construction meeting (optional – required by some designers)
- Installation.
- Inspection of system.
- Issuance of operation permit.
- Annual inspection (AOSS). (Can be more frequent, more frequent O&M visits and sampling for non-residential systems and large AOSS)
- Lab samples for AOSS. 5 years for generally approved residential. More frequent for non-residential and non-generally approved.
- 5 year pump out (conventional systems in CBPA). (Inspections and effluent filters are also an option)
- Renewable OPs.

Conducting a hazard analysis.

Develop a list of hazards which are likely to cause injury or illness if they are not controlled. (If hazard is not likely to occur would not require further consideration).

- Discharge of effluent to surface waters when an onsite system is flooded by surface water. System flooded, not properly treating effluent. Biological
- Discharge of effluent to waters with active shellfish harvest. Biological, physical, and chemical contamination of the shellfish harvesting areas (side effect of economic impact)
- Contamination of groundwater because of inadequate treatment prior to dispersal to groundwater, due to rise in groundwater level. Biological, chemical.
- Backup of sewage into homes, as a result of flooding of the system. Biological, chemical.
- Premature septic failures, may be no other regulatory complaint option for onsite disposal. Biological.
- Subdivision lot approvals/certification letters do not expire, may result in permits in areas impact by climate change. Biological, chemical.
- Damage to system components from increasing climate event, frequency and severity. Physical
- Climate change can impact supply chains for onsite system components.

How might different factors influence the likelihood and severity of the hazards.

- Discharge of effluent to surface waters when an onsite system is flooded by surface water. System flooded, not properly treating effluent. Biological
    - Duration and frequency of the flooding.
    - Distance from the shoreline.
- Discharge of effluent to waters with active shellfish harvest. Biological, physical, and chemical contamination of the shellfish harvesting areas (side effect of economic impact)
    - Distance from shellfish waters.
- Contamination of groundwater because of inadequate treatment prior to dispersal to groundwater, due to rise in groundwater level. Biological, chemical.
    - Distance from groundwater
- Backup of sewage into homes, as a result of flooding of the system. Biological, chemical.
- Premature septic failures, may be no other regulatory complaint option for onsite disposal. Biological.
- Subdivision lot approvals/certification letters do not expire, may result in permits in areas impact by climate change. Biological, chemical.
- Damage to system components from increasing climate event, frequency and severity. Physical

Overall

- Properties at risk not fully identified.
- Some onsite sewage system serve higher risk population. If system flooded, failing, backing up, creates a higher risk for injury. Biological, chemical. (Higher risk – physical limitations or economic)
- Treatment level of the system.
  - Type of treatment
- Electrical components in the system – yes/no.
- Volume of effluent being produced.

Discharge of effluent to surface waters.

- Permitting of systems that meet minimum separation under today's conditions.
- Likelihood/severity based on pace of change.
- Proximity to shoreline.

Discharge of effluent to waters with active shellfish harvest.

- Permitting of systems that meet minimum separation under today's conditions.
- Likelihood/severity based on pace of change.
- Proximity to shoreline.

Contamination of groundwater.

- Permitting of systems that meet minimum separation under today's conditions.
- Likelihood/severity based on pace of change.

Backup of sewage into home.

Premature septic failures.

- Certification letters/subdivision approvals that do not expire.
- Likelihood/severity based on pace of change.

Properties at risk not fully identified.

- May continue status quo permitting in areas at future risk.

Other hazards.

Each step in onsite permitting, installation, and operation process should be listed along with measures necessary to control the hazard.