

State of Michigan



Department of Environmental Quality


Michigan Department of Environmental Quality

Septage Waste Storage Facility Management Practices

April 5, 2006

Michigan Department of Environmental Quality
Water Bureau
Lansing Operations Division
On-Site Wastewater Unit
Septage Waste Program
535 West Allegan Street
P.O. Box 30273
Lansing, Michigan 48909-7773

<http://www.michigan.gov/deg>

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Jennifer M. Granholm, Governor

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Department of Environmental Quality
Steven E. Chester, Director

Septage Waste Storage Facility Requirements

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SECTION I - INTRODUCTION

Legislative changes to the Michigan Septage Waste Servicers law, Part 117, Septage Waste Servicers, of the Natural Resources and Environmental Protection Act, 1994 PA 451, as amended (Part 117), were signed into law by Governor Jennifer M. Granholm on October 12, 2004. The approval and construction of septage waste storage facilities (SWSF) is the focus of this document. Two changes to Part 117, which go into effect on October 12, 2006, include requirements to screen all septage waste prior to land application and ban septage waste disposal on frozen soil. These requirements have led many in the septage waste industry, who use land application as their principle means of disposal, to pursue new ways to continue business during winter, inclement weather, and when crops are planted. For many that choice is to construct a SWSF.

Septage waste firms that do not land apply septage waste may also find storage a good business investment by providing for storage when an authorized septage waste receiving facility is temporarily closed or road conditions are poor for transport to the authorized receiving facility. Septage waste storage can also facilitate a septage firm's ability to transport "full loads" to a receiving facility for treatment.

Some septage waste firms are planning on adding a screening component to their SWSF so they can meet the new screening requirement. These designs allow the septage firm to screen prior to storage and land application.

The purpose for constructing a n SWSF is to provide temporary storage for up to one year of septage waste prior to disposal on a Michigan Department of Environmental Quality (MDEQ) authorized land disposal site or at an authorized septage waste receiving facility. The information contained in this document outlines the steps needed to receive MDEQ authorization to construct an SWSF in Michigan. This includes detailed information on site plan requirements, isolation distance setbacks, odor footprint calculations, and other SWSF construction requirements. In addition to state requirements, the SWSF should be located and constructed in accordance with local ordinances and standards to minimize conflicts with adjacent land uses, preserve water quality, and minimize odors.

The amended septage waste law mandates that an advisory committee be convened to make recommendations on SWSF management practices, including, but not limited to, storage facility inspections. The advisory committee first met on December 13, 2004, and consisted of the following: a storage facility operator, a receiving facility operator, a generator of septage waste, a representative of township government, and a licensed Michigan septage waste hauler.

The requirement to receive MDEQ authorization prior to SWSF construction is found in Section 324.11715d. (3) of Part 117, which states; "A person shall not construct a septage waste storage facility without written approval from the department."

The MDEQ strongly recommends to septage waste firms planning on constructing an SWSF that the local unit of government, where the SWSF is planned, be contacted early in the decision making process to determine if use of the property for an SWSF complies with applicable local zoning, laws, and ordinances. It is best to determine in

the early planning stages whether or not a local unit of government has an established law or ordinance that regulates SWSF construction.

The following information contained in this document must be submitted to the MDEQ for review and approval prior to SWSF construction. The information contained in the SWSF plans will be used by the MDEQ as a basis for approval or denial of the proposed SWSF.

SECTION II - SEPTAGE WASTE STORAGE FACILITY SITE SELECTION

Site selection – considerations

One of the first steps in this process is to contact and discuss your plans to construct a SWSF with the appropriate official from the local unit of government where the SWSF is planned. The local government official must sign a written statement that they were consulted regarding the proposed SWSF and that the SWSF meets all local zoning requirements. These steps will provide you with information regarding whether or not there are local ordinances that regulate or ban the construction of a SWSF.

Each new SWSF construction site needs an assessment using the information and recommendations found in this document. This document recognizes the importance of siting decisions. In addition to the information provided in this document, it is highly recommended that the following sources for information and standards relating to the siting and construction of an SWSF be used:

- United States Department of Agriculture (MDA), Natural Resources Conservation Service (USDA-NRCS) technical references.
- Michigan Department of Agriculture Generally Accepted Agricultural and Management Practices (GAAMPS) for Manure Management and Utilization. MDA GAAMP references can be found on the MDA Web site at <http://www.michigan.gov/mda/> and then clicking on “Farming,” then “Environment,” and then “GAAMPS.”
- Manure Storages, Manure Management Systems Series by the Midwest Plan Services (MWPS-18 Section 2).
- R 323.2237 of Part 22, Groundwater Quality administrative rule, promulgated pursuant to 1994 PA 451, as amended.
- Recommended Standards for Wastewater Facilities (Storage), Great Lakes-Upper Mississippi River Board of State and Provincial Public Health and Environmental Managers.
- Construction design for septage waste storage facilities should meet specifications and guidelines found in the USDA-NRCS-MICH Technical Guide, Section IV, State-Wide Waste Storage Facility (No.) 313.
- *Rectangular Concrete Manure Storages, Second Edition, MWPS-36* (Midwest Plan Service, 2005)
- *Circular Concrete Manure Tanks: Using a Hinged-Base, Free-Top Design, TR-9* (Midwest Plans Service, 1999).
- To protect groundwater from possible contamination, utilize liners that meet specifications and guidelines described in the Natural Resources Conservation Service Field Office Technical Guide (NRCS-FOTG).
- Liners include natural existing soil (Barrington and Jutras, 1985; Barrington *et al.*, 1987a, 1987b).
- Michigan Odor Print, September 7, 2000, Version by Howard Person, Agricultural Engineering, Michigan State University (MSU) provides an odor print calculator to determine setback isolation distances. The odor print calculator is available on the Michigan Agriculture Environmental Assurance Program Web site at <http://www.maeap.org>. Click on “Resources,” then “Right To Farm Information,” then Odor Estimator Model.”

- “Michigan Odor Management Plan,” Appendix A, of the document titled *Generally Accepted Agricultural and Management Practices for Site Selection and Odor Control for New and Expanding Livestock Production Facilities* issued June 2005.
- *Outdoor Air Quality, MWPS-18* (Midwest Plan Service), Section 3.
- Ohio State University Web site (see ohioline.osu.edu/b854/b854_1.html).

The primary considerations relating to site selection prior to constructing a SWSF:

1. Environmental Protection

- Surface and groundwater protection
 - It is highly recommended that the SWSF be located outside of a designated 100-year floodplain.¹ If building in a floodplain, you are required to apply for and receive a permit from the MDEQ prior to construction.² Permit details can be obtained by contacting Land and Water Management Division district staff. For additional information on this permit requirement, see <http://www.michigan.gov/jointpermit>.
 - Vertical separation of 2 feet from the bottom of the SWSF to the seasonal high water table must be maintained.³
 - Leak monitoring is required for all SWSF structures. Leak monitoring for lagoons must meet Part 22 requirements.⁴
 - Leak monitoring should take place on a quarterly basis at a minimum. Records should be maintained and include the date of the inspection, the name of the inspector, what type of inspection was performed and whether or not a leak or other problem was observed. If a leak is observed, it should be immediately reported to the MDEQ, Septage Waste Program staff along with a plan for remediation.
 - Leak inspection details should be included in the Operation and Maintenance Manual with a drawing showing the general tank and piping layouts and the locations where monitoring is performed (i.e., location of each sensor, line leak detector, monitoring system control panel, etc.)

2. Odor Control (see Section III of this document for more details).

- Nuisance abatement
 - Odor footprint based on the size and location of the SWSF.
 - Locate away from residences.

Site plan

A site plan is a comprehensive layout for a SWSF and must include the following:

- A site map of the property where the SWSF is to be located, including the following features (to scale):
 - Property lines, easements, and rights-of-way.
 - Public utilities, overhead power lines, cable, pipelines, and legally established public drains.
 - Positions of buildings, water wells, septic systems, culverts, drains and waterways, fences, roads, and other paved areas. All water wells (whether

- public or private) within a specified distance should be listed (see isolation distances on page 8 of this document).
- Location and type of existing utilities.
 - Location of wetlands, streams, and other bodies of water.
 - Floodplain identification.⁵
 - Location of field drainage tile.
 - Topographic map of site and surrounding area.
 - Location and configuration of the proposed SWSF.
 - Show distance measurements to wells and property lines.
 - Prevailing summer wind direction.
 - Seasonal high groundwater identification.
 - Names, addresses, and phone numbers of adjacent property owners.
 - A soils map of the area where the proposed SWSF will be constructed.
 - Location and distance to the nonfarm residences within one-half mile radius of the proposed facility.
 - Location and distance to the nearest residentially zoned area.
 - Location of Type I, IIa, IIb, and Type III wells within 2,000 feet of the SWSF.⁶
 - Aerial photos.
 - Topographic map of the proposed building site and surrounding area.
 - Fencing.
 - Locked gates.
 - Locking gate and pinch valves to protect against tampering.
 - Warning signage (no trespassing).
 - Safety features designed to protect human life.
 - Spill and catastrophic structural failure protection features.
 - Secondary containment should be considered especially if the SWSF is located on a hill where a release could flow onto neighboring property, river, stream, or ditch. The decision to build secondary containment should be based on the layout of your site and the potential impact on your neighbors or the environment.
 - The site plan must be sealed by a Michigan Registered Professional Engineer. Include the name of Michigan Registered Professional Engineer who prepared and sealed the site plan.

Site maps are very important in that they provide an overview of the land by offering a different perspective than one can observe from eye level. An overhead image of an area might reveal important characteristics of the land that may limit the construction of an SWSF. Secondly, maps contain valuable information such as soil information (county soil surveys), elevations, topography, streams, and other water bodies. This information is necessary to the SWSF planning process.

Isolation setback distances

Setback distances are intended to reduce the impact of an SWSF on surrounding homes, buildings, businesses, water wells, surface and groundwater, property lines, roads, parks, and churches.

A SWSF can be constructed if the horizontal distance from that structure and the features listed below equals or exceeds the following isolation distances.⁷

<u>Feature</u>	<u>Isolation Distance</u>
Type I and IIa public water supply wells	2,000 feet
High public use areas ⁸	1,500 feet
Type IIb and III public water supply wells	800 feet
Private drinking water wells	150 feet
Other water wells	150 feet
Homes or commercial buildings	150 feet
Surface water	150 feet
Roads or property lines	150 feet
Field/drainage tile	50 feet
Odor	See odor table

Odor impact will frequently extend beyond property lines and will likely increase the required minimum setback distances described above for larger, open topped storage structures. Please note that the isolation distances above may be affected by the required calculation results as described in a document entitled “Michigan Odor Print,” September 7, 2000, version by Howard Person, Agricultural Engineering, MSU. Detailed information on this topic can be found in Section III of this document.

Setback reduction

There may be circumstances where the SWSF can be constructed at reduced isolation distances from Type IIb and Type III public water supply wells. Direct setback reduction inquiries to the MDEQ, Septage Waste Program.

Storage size considerations

The size of your SWSF is dependent on a number of factors including the type of facility planned for construction. The primary consideration is the volume or number of gallons you will need to store. The capacity of a SWSF will be greater if you need to store the septage waste for a one-year period than it would be if you only need storage for three months or less. Rainfall is another consideration for those who plan to construct an open topped facility.

Septage waste volume records are helpful in determining the storage capacity of the SWSF. The septage waste volume records must be reviewed in detail over a period of years to determine the storage volume needed for a given time period. The past records of pumping, changes in storage due to the new Part 117 requirements and changes in the business, projected growth, and type of storage facility will be helpful in determining the size of storage facility needed.

Section II References and Definitions

1. Floodplain information can be found on the DEQ Land and Water Management Division website at www.michigan.gov/floodplainmanagement. Click on “Online Request for Floodplain Elevations” under “Information.”

2. The State of Michigan's Floodplain Regulatory Authority, found in Part 31, of Act 451, requires that a permit be obtained prior to any alteration or occupation of the 100-year floodplain of a river, stream, or drain.
3. USDA-NRCS-MICH Technical Guide, Section IV, State-Wide Waste Storage Facility (No.) 313.
4. R 323.2237 of the Part 22 Groundwater Quality administrative rule, promulgated pursuant to Act 451.
5. The "floodplain" definition is contained in the rules (R 323.1311), Part 13, Floodplains and Floodways, of Act 451, and is "that area of land adjoining a river or stream that will be inundated by a 100-year flood." The 100-year flood is defined as "a flood with a magnitude which has a 1 percent chance of occurring or being exceeded in any given year."
6. Michigan Safe Drinking Water Act, 1976 PA 399, as amended, and the administrative rules. Part 5, Types of Public Water Supplies R325.10502, Rule 502.
7. These isolation distances were referenced from Part 117, Septage Waste Servicers, of Act 451, and the USDA-NRCS-MICH Technical Guide, Section IV, State-Wide Waste Storage Facility (No.) 313.
8. High public use areas include churches (places of worship), hospitals, schools, parks, campgrounds, commercial zones, commercial licensed elder care facilities, and commercial childcare facilities. This isolation distance recommendation does not apply to covered septage waste storage facilities.

SECTION III - ODOR MANAGEMENT

The primary objective of storage is to temporarily store the septage waste before applying it to land or transferring to an authorized septage receiving facility. While SWSF do not treat the septage waste, some biological activity will occur in these storages, and the gases generated can be a source of odors and can be explosive. The potential for septage waste odors to be carried away by air movement will increase at SWSF that are left uncovered.

Odor control is a primary focus relating to the social consideration and objectives of this document. There is considerable public concern about activities involving the storage and land application of human waste both as septage waste and biosolids. Odor perception is a subjective response to what people detect through their sense of smell in the air they breathe and poses unique management challenges for the septage waste firm who stores and land applies septage waste. Odorous gases can become an annoyance or nuisance if septage waste is mismanaged or if the SWSF is improperly sited.

The goal for effective odor management is to eliminate objectionable odors by reducing the frequency, intensity, duration, and offensiveness of odors that neighbors might experience. Because of the subjective nature of human responses to certain odors, recommending appropriate technology and management practices is not an exact science. Site selection for septage waste storage is an important part of managing and, therefore, minimizing potential for odor impact upon neighbors.

In addition to off-site nuisance odors generated around SWSF, the presence of on-site odors may pose a health risk for workers. The primary gases released from a SWSF are hydrogen sulfide, ammonia, carbon dioxide, carbon monoxide, and methane. Hydrogen sulfide is the most dangerous. When it is in sufficient concentrations, hydrogen sulfide can kill humans and animals.

Based on information found on the Ohio State University Web site (see http://ohioline.osu.edu/b854/b854_1.html), swine manure has the closest characteristics (nutrients, odor, etc.) to human waste than any other animal waste. The swine manure/human septage waste table in the above referenced document has been used for comparative purposes throughout this section.

Septage waste firms should plan, design, construct, and manage their SWSF structures in a manner that minimizes odor impacts upon neighbors. Odor management must meet the specifications and guidelines found in the following publications:

1. Michigan Odor Print, September 7, 2000, Version by Howard Person, Agricultural Engineering, MSU provides an odor print calculator to determine setback isolation distances. The odor print calculator is available on the Michigan Agriculture Environmental Assurance Program Web site at <http://www.maeap.org>. Click on "Resources," then "Right To Farm Information," then "Odor Estimator Model." Other odor management resources include:

- “Michigan Odor Management Plan,” Appendix A, of the document titled *Generally Accepted Agricultural and Management Practices for Site Selection and Odor Control for New and Expanding Livestock Production Facilities* issued June 2005.
- *Outdoor Air Quality, MWPS-18 (Midwest Plan Service), Section 3.*

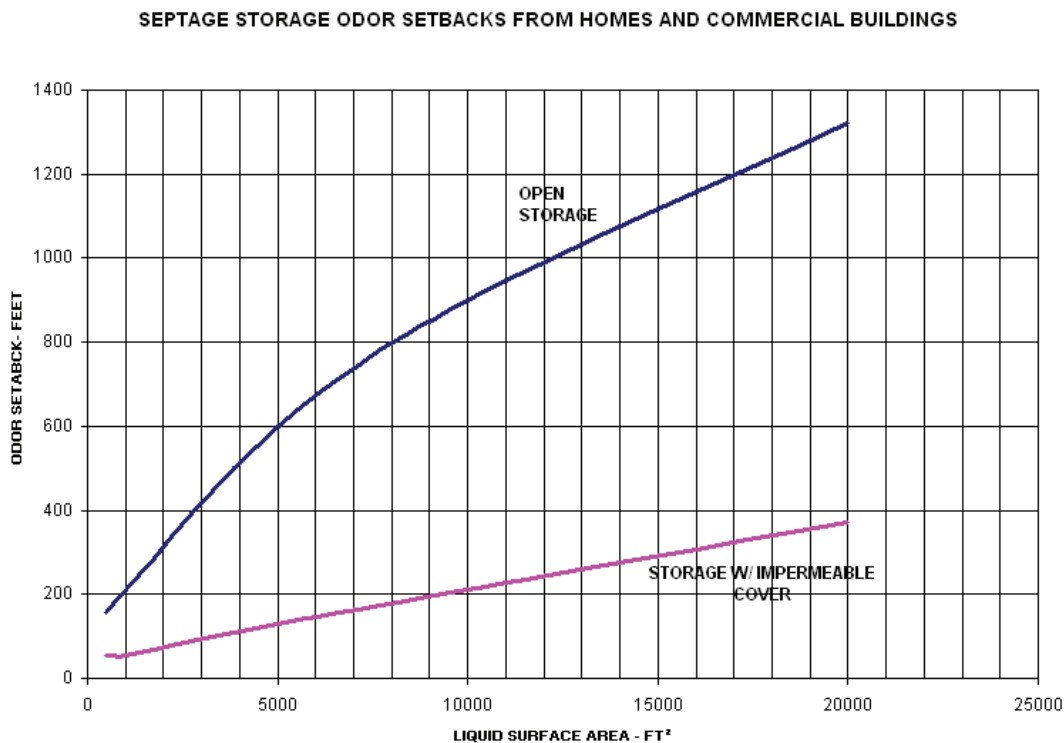
The following items are highly recommended:

2. Use covered septage waste storage facilities if technically and economically feasible.
3. Establish or take advantage of existing vegetation such as conifers or woodlots to provide a visual screen and air filtration between the SWSF and the general public.

Odor print site mapping

The prevailing winds of summer must be considered for odor reduction and setback isolation distance requirements. Light winds, typically from the south on hot, humid nights carry odor the furthest.

Figure 1.



The graph in Figure 1 above shows isolation setback distances based on the size in square feet of both covered and uncovered SWSF. The graph was developed using the MSU “Michigan Odor Print” calculator. Please keep in mind that covered storage facilities with a capacity of 10,000 gallons or less will still emit odors when septage is pumped into or out of them. The odor impact and resulting placement of a reduced volume below ground SWSF must also be taken into consideration.

Please note that the isolation setback requirements from homes and commercial buildings may be greater than those described in the isolation distance tables found in Section II of this document. The setback requirements that must be used are those that provide the greatest distance based on the results from the odor print calculations and/or the isolation distance tables. The use of an impermeable cover as a n odor reduction control will greatly reduce the setback isolation distance requirements.

Other types of odor control mechanisms or SWSF designs not covered by this document will be reviewed by the MDEQ upon request on a case-by-case basis.

SECTION IV - CONSTRUCTION DESIGN

Septage waste storage structures should be designed and constructed by competent individuals or companies utilizing generally accepted standards, guidelines, and specifications.

1. Construction design for septage waste storage facilities should meet specifications and guidelines found in the USDA-NRCS-MICH Technical Guide, Section IV, State-Wide Waste Storage Facility (No.) 313. Additional publications that are highly recommended for use include *Rectangular Concrete Manure Storages, Second Edition, MWPS-36* (Midwest Plan Service, 2005) and *Circular Concrete Manure Tanks: Using a Hinged-Base, Free-Top Design, TR-9* (Midwest Plans Service, 1999).
2. To protect groundwater from possible contamination, utilize liners that meet specifications and guidelines described in R 323.2237 of Part 22, Groundwater Quality administrative rule, promulgated pursuant to Act 451.
3. All open-topped septage waste storage structures, including lagoons, should maintain a minimum of twelve inches of freeboard plus the additional storage volume necessary to contain the precipitation and runoff from a 25-year, 24-hour storm event.

Sizing storage facility – design capacity

Septage waste storage is needed by the septage waste firm that uses land application as their principle means of disposal. The properly sized SWSF will allow the septage firm to continue doing business throughout the winter months when the soil is frozen or when conditions make it virtually impossible for the firm to meet both state and federal septage waste disposal requirements. The septage waste firm can determine the capacity needed for both the winter and summer months by reviewing their septage waste volume records.

Storage period

The septage waste firm owner must determine if they need storage for both summer and winter. Consider short-term (three months or less), mid-term (three to six months), or long-term (six months to one year). Most operations utilizing fields with a single, full season annual row crop or small grain crop will need at least six months of storage to schedule land application around cropping operations. Experience has shown that even a full year's storage is beneficial when wet conditions may make fall application difficult and septage waste needs to be stored until spring. Remember, septage waste storage is only temporary and not considered "treatment."

Minimum sizing requirement

No engineering plans are required for an enclosed SWSF structure(s) with a combined storage capacity of 10,000 gallons or less. However, if it costs more than \$15,000 to purchase and install such a facility/structure, the plan must be prepared and stamped by a Michigan Registered Professional Engineer. In all cases, regardless of the capacity (volume) of the SWSF, the site plan, isolation distances, and other requirements

outlined in this document must be met and submitted to the MDEQ for review and approval.

Upon completion, the septage waste firm shall submit an affidavit of construction signed and stamped by a Michigan Registered Professional Engineer to the MDEQ attesting that the septage waste storage facility is in compliance with and constructed in accordance with the initial MDEQ authorization.

Subsurface investigation

It is important to determine the depth to the seasonal high-water table and soil types since there is a potential risk for groundwater pollution. However, the proper construction, maintenance, and use of the SWSF should minimize or eliminate these pollution risks.

This assessment shall be conducted by individuals trained in soil science, engineering, geology, or a related field. The number and depth of test holes will vary depending on the planned surface area and depth of the structure and the conditions encountered during the investigation.¹

Types of septage waste storage

1. Open-topped, watertight containers or structures constructed of steel, concrete, plastic, or fiberglass.
2. Covered, watertight containers or structures constructed of steel, concrete, plastic, or fiberglass.
3. Below building pit. These are most commonly swine facilities with under-floor pits constructed of concrete.
4. Lagoons.
5. Below grade facilities with a capacity of 10,000 gallons or less.

Special conditions related to lagoons and large open topped structures

- Greater potential for odor issues due to a greater surface area (compared to above ground tanks) and odors from anaerobic conditions due to extended frozen periods.
- For lagoons, difficulty in agitating properly prior to septage waste removal for land application or transport.
 - Other SWSF designs lend themselves more readily to agitation and mixing of septage waste prior to removal and land application.
 - The agitation of the septage waste prior to removal from any SWSF is needed so the septage waste is properly mixed. This ensures that the solid and liquid portions of the septage waste, which contain the nutrients needed for proper crop growth, are uniformly applied to the land application site.
- All require soil evaluation, proper soil material, and seal construction.
- All types should be built so they do not leak.
- Not appropriate for regions with shallow water tables on high risk geology.
- Fencing (especially for lagoons) and warning signs required.

Septage waste emptying component

Residual solids removal will be required to preserve the storage capacity of the SWSF. The emptying component is also critical for those who land apply septage at agronomic rates. A uniform mixture of septage waste is important so the nutrients are uniformly blended and then applied to the land to assist the crops nutrient needs. A uniform mix will also ease injection operations. This can be accomplished by installing:

- Specialized pumps designed to mix the contents of the tank or lagoon into blended slurry prior to land application.
- A sump or other device installed to ensure complete removal of septage waste for disposal (land or receiving facility).
- Gate, pipe, dock, wet well, pumping platform, retaining wall, or ramp.
- Other means to remove solids.

Safety and security features

Septage waste should be stored in such a manner that it protects the environment, human, and animal safety. Training is highly recommended for the owner/operator of a SWSF to ensure that hazards are identified and that all tasks related to septage storage are completed in a safe manner.

The operator may be exposed to hazards that may include one or more of the following tasks associated with a n SWSF:

1. Working inside of the storage facility structure, wet well, pump, or lift station. These areas may be defined as a confined space;²
2. Using or repairing mechanical equipment such as pumps, grinders, or screens;
3. Working with electrical equipment such as blowers and pumps.

If the SWSF is covered, it must be properly ventilated to prevent explosion, poisoning, or asphyxiation. Warning signs should be posted regarding confined space entry.

The SWSF area, valves, access openings, and other appurtenances should be secured when not in use to prevent access by unauthorized personnel, children, or animals.

It is not within the scope of this document to describe all of the safety procedures needed to safely operate an SWSF. It is highly recommended that the SWSF owner research and work with experts in this area to ensure personal and employee safety. Safety and security features must be included in the operation and maintenance plan described in Section V.

Section IV References

1. USDA-NRCS-MICH Technical Guide, Section IV, State-Wide Waste Storage Facility (No.) 313.
2. A confined space is a space that is large enough so a person can physically enter a structure with limited entry or exit. These spaces are not designed for continuous human residence.

SECTION V - DEPARTMENT OF ENVIRONMENTAL QUALITY REVIEW AND AUTHORIZATION PROCESS

MDEQ plan review and authorization - prior and post construction

- Plan submittal sent to the MDEQ Septage Waste Program for review.
- The MDEQ will conduct a preliminary site inspection at the proposed site. The site inspection will take place after receipt and confirmation that the SWSF plans are complete and will focus on addressing conformance with the plan components, identifying areas of concern, and verifying information submitted in the siting request.
- Confirm that the construction plans are sealed by a Michigan Registered Professional Engineer (P.E.)
- Ensure all the elements required are detailed in the site plans (see page 8) of this document for details).
 - Site selection along with isolation distance information.
 - Odor control and accompanying odor footprint calculations and associated setback distances.
- Confirm that a written statement and signature from the local township/local unit of government is provided that they were contacted regarding the proposed SWSF.
- MDEQ construction authorization – mail approval back to interested firm.
- Written affidavit by a P.E. that the SWSF was constructed per MDEQ authorization.
- Inspection and sign-off by MDEQ authorizing use.

Operation and Maintenance Plan

The development of an Operation and Maintenance Plan is highly recommended. Periodic inspection and maintenance schedules are crucial to optimum performance of the SWSF. Examples of what should be included in the Operation and Maintenance Plan are provided below.

Basic operations (day to day)

- Loading/filling.
- Mixing of septage waste and solids.
- Pump out.
- Odor management.
- Vector reduction.
- Volume management.
 - High water alarms checked.
 - Volume records tracked daily.

Routine maintenance

- Septage waste storage structure.
- Liner maintenance.
- Wet wells.
- Pumps.

- Valves.
 - Check valves.
 - Pinch valves.
 - Gate valves.
 - Plug valves.
- Operating levels (freeboard).
- Other appurtenances.
- Equipment maintenance (pumps, screens, etc).
- Leak testing.
- Safety features.

Emergency plan

- Detailed procedure for use in the event of a septage waste spill, such as listing contact people and notification phone numbers:
 - Include the MDEQ's Pollution Emergency Alerting System hotline number, 1-800-292-4706.
- Plans for leaks and spills that might happen, including a breach of the storage structure, valve malfunction, during septage transfer, and during transport.
- The plan should include prevention and monitoring that includes the following at a minimum:
 - Determine a minimum freeboard in the SWSF to prevent overflows;
 - Proper maintenance of SWSF lagoon berms through routine mowing and inspection for burrowing animals activity to prevent septage waste releases.

Record keeping

- Volume in.
 - Break down the amount of food establishment (FES) septage and domestic septage.
- Mixing time prior to septage waste removal.
- Volume out.
 - Track the amount of FES blended with domestic septage (1:3 ratio).
- Freeboard.
- Leak surveillance.
- Maintenance.
- Septage analysis.

SECTION VI - ABANDONMENT AND CLOSURE

At some point in time, the SWSF structure will either need to be replaced or no longer needed to store septage. The septage firm will be required to properly abandon and close the facility to prevent environmental harm.

When the septage firm decides to close their SWSF, they should contact the MDEQ in writing and provide an outline describing in detail how they intend to close the facility.

Detailed closure information can be found in chapter 6 of the booklet entitled “Manure Storages, Manure Management Systems Series” by the Midwest Plan Services (MWPS-18 Section 2). This chapter focuses on earthen and lagoon type storages. The requirements to remove septage and their associated solids still apply.

The MDEQ highly recommends that the septage firm properly remove and dispose of the septage within one year (in accordance with state and federal laws) after deciding that the SWSF is no longer needed.

As always, the septage firm is encouraged to contact MDEQ Septage Waste Program staff if they have any septage waste storage facility questions.

ADVISORY COMMITTEE

Listed below are participants and members of the advisory committee that made recommendations on septage waste storage facility management practices.

Wm. Elgar Brown, P.E., Chief
Drinking Water and Environmental
Health Section
Lansing Operations Division
MDEQ
P.O. Box 30273
Lansing, MI 48909-7773
Brownelg@michigan.gov

Raymond Daniels
Michigan Septic Tank Association
Daniels Septic Service
4350 Knight Road
Sterling, MI 48659
daniels@sch-net.com

Barry Johnson, P.E.
Environmental Engineer
Camp, Dresser and McKee
One Woodward Avenue, Suite 1500
Detroit, MI 48226
Jonsonba@cdm.com

Matt Campbell, Septage Waste
Program Coordinator
Drinking Water and Environmental
Health Section
Lansing Operations Division
MDEQ
P.O. Box 30273
Lansing, MI 48909-7773
Campbelm@michigan.gov

Sandra Diorka
POTW Superintendent
Delhi Charter Township
5961 McCue Road
Holt, MI 48842
Sandra.diorka@delhitownship.com

Steve Mahoney
Environmental Stewardship Division
Michigan Department of Agriculture
P.O. Box 30017
Lansing, MI 48909
Mahoneys@michigan.gov

Mitch Caskey, R. S.
Environmental Health Director
Lapeer County Health Dept.
1800 Imlay City Road
Lapeer, MI 48446
MMcaskey@lapeercounty.org

Richard Falardeau, P.E., Chief
Onsite Wastewater Unit
Drinking Water and Environmental
Health Section
Lansing Operations Division
MDEQ
Constitution Hall
P.O. Box 30273
Lansing, MI 48909-7773
Falarder@michigan.gov

Mark Scott
Michigan Septic Tank Association
Scott's Excavating
P.O. Box 739
Roscommon, MI 48653
MScott@I2K.com

James K. Cleland, P.E., Chief
Lansing Operations Division
Water Bureau
MDEQ
P.O. Box 30273
Lansing, MI 48909-7773
ClelandJ@michigan.gov

Tom Frazier
Michigan Townships Association
521 Westshore Road
Lansing, MI 48917
tom@michigantownships.org

Dan Wolz, Past Superintendent
City of Wyoming
Clean Water Plant
2350 Ivanrest S.W.
Wyoming, MI 49418

Michelle Crook, P.E.
Environmental Stewardship Division
Michigan Department of
Agriculture
P.O. Box 30017
Lansing, MI 48909
Crookm@michigan.gov

Joe Hall
Michigan Septic Tank Association
Hall's Service All
10427 Leed Road
Posen, MI 49776
Hallservall@yahoo.com