

Appendix C

Education Plan

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Acronyms

Acronym	Definition
AWWA	American Water Works Association
BSDW	Bureau of Safe Drinking Water
GIS	Geographic Information System
ISWPP	Integrated Source Water Protection Program
NDEP	Nevada Division of Environmental Protection
NRWA	National Rural Water Association
PWS	public water system
PWSSP	Public Water System Supervision Program
QR	quick response
SWPA	source water protection area
TBD	to be determined
Team	Storey County Local Planning Team

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1.0 Introduction

The Storey County Local Planning Team (Team) recognizes that the success of the Community Source Water Protection Plan for Public Water Systems in Storey County (County-Wide Plan) relies on the community’s willingness to support source water protection. Education and outreach are necessary for increasing public awareness and support for State, regional, and community efforts taking place to safeguard the sources of public drinking water. Increasing the public’s understanding can help residents make more informed choices about what they can do to protect their drinking water sources. This Education Plan was developed to support Goal 4 of the County-Wide Plan.

Goal 4: *Engage water users, stakeholders, and businesses about source water protection and participation.*

Public education is not only an explicit goal of the County-Wide Plan, but also an independent management strategy listed in the Action Plan (Appendix B, County-Wide Plan). The Action Plan outlines various education and outreach actions that work to accomplish Goal 4. These Actions were developed by the Team to specifically benefit the residents of Storey County.

This Public Education and Outreach Plan (Education Plan) presents an array of resources for implementing community-wide education and outreach. Effective leadership in public education and outreach is crucial for organizing engaging events that will inspire and motivate the community toward the shared goal of protecting drinking water sources, now and for future generations. Table 1 provides contact information for education leaders committed to fostering community support for source water protection, and were part of the development of this Education Plan.

Table 1. Storey County Education and Outreach Contacts

Organizations	Phone Number	Email Address
Educational Resources		
Washoe-Storey Conservation District	(775) 722-6302	washoestoreycd@gmail.com
National Rural Water Association	(725) 296-2870	christopher.berkey@nrwa.org
Nevada ISWPP Technical Resources		
Nevada Division of Environmental Protection – Bureau of Safe Drinking Water	(775) 687-9311	e.mason@ndep.nv.gov
Integrated Source Water Protection Program Technical Assistance	(775) 883-1600	jill@rci-nv.com alison@rci-nv.com erin@rci-nv.com

2.0 Target Audience and Educational Focus

Through the development process of the County-Wide Plan, the Team identified several key target audiences for specific public education and outreach messaging. This Education Plan has been prepared as a resource to help the target audiences gain an understanding of public drinking water sources and the importance of keeping them safe from contamination. Target audiences and their participation and roles in source water protection are identified in Table 2.

Table 2. Target Audiences and Roles in Source Water Protection

Community Goals for Source Water Protection Education	
Target Audience	Importance to Source Water Protection in Storey County
K-12 Students	Promoting education related to source water protection complements existing science and technology curriculums. Hands-on training in the classroom facilitates source water protection discussions and reinforces education at home.
Homeowners <u>Not Connected to a Public Water System</u>	Local community members who are not connected to a municipal system would benefit from information about septic system operation and maintenance, and understanding how individual wells can become a conduit for contaminating groundwater.
Residents / Small Business Owners <u>Connected to Public Water System</u>	Local residents and small business owners are integral to developing community support and participation around source water protection issues. This target audience is most likely to benefit from increased knowledge of topics like public water system operations, emerging contaminants, and proper disposal methods for household hazardous waste and prescription drugs.
Tahoe-Reno Industrial Center	Collaborating with facilities and emergency managers is important for comprehensive source water protection efforts, as these facilities can focus on managing their risks to drinking water sources. This target audience is most likely to benefit from increased knowledge of water quality best management practices, hazardous waste and chemical containment, secondary containment for material storage, and prompt spill response and cleanup.
Community Leaders	Community leaders such as public water system boards, the County Board of Commissioners, and the County Planning Commission, make decisions and recommendations that have the potential to impact source water quality. Increasing fundamental knowledge about Source Water Protection Areas helps to inform the decision-making process and cultivate ongoing support.

3.0 Educational Tools for Presentations

Educational tools offer a fun learning experience that promotes learner engagement, increases participation, and fosters communication. Table 3 provides a variety of educational tools to enhance community understanding of drinking water sources and promote support for source water protection. These resources can be effectively utilized alongside local educational programs, community events, and at public meetings. These and other tools are often accessible through the technical assistance contacts shown in Table 1.

Table 3. Educational Tools and Descriptions

Educational Tools (Target Audience)	Description
<p><u>Physical Watershed Model</u> <i>Best suited for K-12 students or family-friendly events.</i></p>	<p>The watershed model is a hands-on activity showing how contaminants from industrial and residential activities can be washed into drainages.</p> <ul style="list-style-type: none"> • Tool to discuss types of contaminants and means for managing these, such as best management practices, permitting, or other management strategies (i.e. source water protection areas).
<p><u>Physical Groundwater Model</u> <i>Suited for kids or adults.</i></p> <p><u>Awesome Aquifer Kits</u> <i>Best for K-12 students.</i></p>	<p>Groundwater models demonstrate how contaminants can infiltrate into the ground, eventually polluting groundwater resources.</p> <ul style="list-style-type: none"> • Opens discussions about groundwater terminology, physical makeup of an aquifer, role of groundwater in the hydrologic cycle, and groundwater contamination.
<p><u>Source Water Protection Area Maps</u> <i>Useful for homeowners, small business owners, and community leaders.</i></p>	<p>Source Water Protection Area maps represent important management boundaries around public drinking water sources. Maps can clearly show an “impact area,” which are based on groundwater properties or follow topography.</p> <ul style="list-style-type: none"> • These maps can be used at public events, or virtually (online), to discuss source water protection topics. Source Water Protection Area maps are provided in Appendix A of this County-Wide Plan.
<p><u>Website / Online Resources</u> <i>Resources available for community leaders or resource managers.</i></p>	<p>American Water Works Association:</p> <ul style="list-style-type: none"> • https://www.awwa.org/Resources-Tools/Resource-Topics/Source-Water-Protection <p>Groundwater Protection Counsel:</p> <ul style="list-style-type: none"> • https://www.gwpc.org/topics/source-water-protection/ <p>USDA Natural Resources Conservation Service:</p> <ul style="list-style-type: none"> • https://www.nrcs.usda.gov/programs-initiatives/source-water-protection
<p><u>Informational Pamphlets</u> <i>Best for homeowners or small business owners.</i></p>	<p>Informational pamphlets discussing a variety of source water protection topics (e.g. emerging contaminants, household hazardous waste, proper septic maintenance, private well ownership, etc.), are a great way to provide information to the community.</p> <ul style="list-style-type: none"> • Pamphlets at county offices, or other public offices or events, or by public water systems for relevant topics. Informational pamphlets are provided in Attachment D of this Education Plan.

4.0 Education Outreach Tactics and Tips

Source water protection Team members serve as ambassadors for the County-Wide Plan within their respective communities or organizations. Outreach is fundamental for engaging the interest of a target audience in Storey County. Specific tactics, discussed in Table 4, can help enhance community understanding of drinking water sources and guide them on how they can assist their water purveyors in protecting those resources.

Having a sense of the target audience’s personal perspective (i.e. are they a business owner, resident, or community leader) can be helpful when trying to kick-start open communication. When implementing various tactics, consider incorporating the following steps:

- 1) **Plan** the desired message, be consistent, and include a call to action.
 - a. *“To learn more about septic system maintenance, visit...”*
 - b. *“To learn more about how to dispose of household hazardous waste check out...”*
- 2) **Know** how an audience should utilize the information.
 - c. *Keep it simple and to the point.*
 - d. *Use words and terms the audience will know and provide context for technical/scientific concepts.*
- 3) **Recognize** channels through which the information will be disseminated.
 - e. *What does the audience need to know?*
 - f. *What are your resources and budget?*
 - g. *How much time do you have?*
- 4) **Identify** how each tactic will be evaluated for effectiveness.
 - h. *How will you follow up to determine effectiveness?*

Table 4. Outreach Tactics and Content

Tactics	Application Methods and Content
Fact Sheets, Brochures, Handouts, Flyers, Water Bill Inserts	Paper materials can be distributed in the mail, at libraries, community centers, builder associations, rotary club meetings, economic development authorities, etc.
Presentations and On-Site Education	Presentations about various source water protection topics, formal or informal, can be given at public meetings, to local water boards, at industrial development meetings, etc.
Employee Trainings	Training sessions can cover a wide range of topics that promote source water protection efforts such as, safe materials handling, emergency spill response, and source water protection awareness.
Source Water Site Signage	Signage can be helpful in circumstances where regular day-to-day activities have the potential to impact a drinking water source. Signage can raise awareness and encourage appropriate behavior.
Public Water System Annual Consumer Confidence Report	Incorporate source water protection information into the annual consumer confidence report.

5.0 Source Water Protection Messages

An engaged audience is more likely to understand educational material and retain information. In many circumstances, it is best to begin your conversation about source water protection at a basic level and build up from there. People develop an understanding and connection to a topic when they are provided with appropriate context. The following messages were selected by the Team to include in this Education Plan, as they may be more relevant to the communities in Storey County:

Where does our drinking water in Storey County come from?

Many residential properties in Storey County rely on groundwater as their source of drinking water. Groundwater is extracted from wells drilled into aquifers, comprised of rock, sand, and gravel, located deep under the Earth's surface.

Another important source of Storey County's municipal system is from surface water reservoirs in the Sierra Nevada mountains. These reservoirs collect water from the surrounding mountains, primarily from snowmelt, before it's transported through pipelines to the county's storage reservoir and treatment facility.

Why is it important for us to protect drinking water at the source?

Both surface and groundwater can be polluted by various human activities and natural occurrences. Once a source of drinking water becomes polluted, it becomes extremely costly and difficult to clean. You have the power to support your water system operators as they implement strategic safeguards to avoid or control contamination threats and incidents that may pollute your drinking water.

What is Storey County and our public water systems doing to provide clean drinking water?

The individual water systems in Storey County are constantly striving to provide their communities with safe and clean drinking water. The public water systems in Storey County are regularly taking the necessary steps to improve infrastructure, engage their communities, and are active participants in the Nevada Integrated Source Water Protection Program – a voluntary and community-driven program to protect drinking water at the source.

What can I do to protect my drinking water?

Protecting your drinking water from contamination is a huge challenge. Safeguarding your drinking water sources begins with awareness and education. We can take everything we've learned home with us, educate our friends and families, and change our behaviors to minimize our impact on our water resources. The adage is true: *"An ounce of prevention is worth a pound of cure!"* – Benjamin Franklin.

What contaminates the water we drink?

Numerous pollutants can contaminate both surface and groundwater. Some contaminants come from the improper disposal of household products such as cleaning agents, waste oil, pet waste, fertilizers, and pesticides. When these products are used, stored, or disposed of improperly, they can threaten drinking water. Emerging contaminants include a broad

spectrum of chemical compounds, industrial pollutants, and human by-products that have been entering our waterways for generations. Recent studies indicate that measurable amounts of these contaminants can be found in some drinking water sources. This makes local residents, industries, and businesses crucial participants in efforts to protect source water.

How can businesses participate in source water protection?

By actively participating in community-driven source water protection efforts, such as spill response and cleanup communication, primary and secondary containment, water quality best management practices, etc., businesses can demonstrate environmental stewardship, enhance corporate social responsibility, and contribute to the long-term sustainability of water resources for present and future generations.

6.0 Additional Education and Outreach Tools

Many tools and educational resources exist to support outreach efforts, Table 5 lists a variety of resource categories, organizations, and supplementary materials provided as Education Plan attachments. These materials are simply a starting point for a successful outreach event or campaign, should additional assistance be needed, please contact the organizations provided in Table 1.

Table 5. Additional Education Plan Tools and Tactics

Additional Educational Tools	Description
National Rural Water Association (NRWA)	The NRWA is a <i>nonprofit organization providing water and wastewater technical assistance and watershed protection coordination programs statewide</i> . NRWA has been, and will continue to be, a partner and asset during local and regional source water protection and conservation outreach and education efforts.
Boards and Local Leader Education and Engagement	Educate board members, town councils, and other local government leaders about the importance of source water protection and conservation. Invite Team members to talk about their source water protection achievements at home and encourage figureheads in the community to participate and lead by example.
Informational Meetings/Presentations	Informational meetings/presentations about source water protection and conservation to HOAs, schools, businesses, and the general population can facilitate positive changes in the way people think about their drinking water sources (short-term impacts), which can lead to positive <i>behavioral</i> changes that protect drinking water sources (long-term impacts).
Educational Flyers (Attachment C)	Educational flyers, such as proper disposal of household hazardous waste and pharmaceuticals, and safe septic practices, promote source water protection and give the community an opportunity to participate in protecting drinking water quality.
Participate in American Water Works Association (AWWA) Source Water Protection Week (Examples provided in Attachment C).	Supporting national water events to engage the community, facilitate community collaboration, and expand how the community thinks about drinking water, to cultivate short- and long-term impacts.
Website Links (Attachment D)	Website links are an important tool for promoting this County-Wide Plan and for creating mutually beneficial relationships with local and regional organizations who support source water protection and conservation.

Additional Educational Tools	Description
Social Media Promotion	Social media posts are an opportunity to share source water protection and conservation accomplishments. It can also serve as a means to invite the community to share their ideas and personal achievements, creating an environment where the community comes together to protect their drinking water.
Source Water Protection and Conservation Booth at Community Events	A sponsored booth at community events can promote source water protection and conservation education and expand communication between water system operators and their community. The watershed and groundwater models can provide an interactive element related to best management practices and conservation tips and tricks. Informational flyers can also be offered and/or distributed.
Site Signage	Businesses who use low impact development or best management practices to reduce their impact on source water can post signs to indicate their dedication to the community's most valuable resource, drinking water.
Testimonials	Encourage Team members, residents, and businesses who have changed their practices to share how they reduced their impact on source water, why they care about source water, and what the results mean for source water protection and conservation. Can be in many forms, such as posters, social media posts, pamphlets at events, and in presentations.

7.0 Measuring Education and Outreach Success

Measuring the success of an education and outreach program or event is important for assessing effectiveness, impact of key messages, and for identifying areas for improvement. Evaluation also can provide accountability to stakeholders and the community.

To assess effectiveness, it is important to determine the most suitable metric for evaluating each tactic, these can either be quantitative or qualitative measurements. It is essential to consider the desired outcomes of the outreach activity, the key audience(s), and the resources available.

Quantitative Measurements – Refers to things that are measurable or countable, such as the amount of information provided. Examples of quantitatively measuring effectiveness include:

- The quantity of presentations delivered and people in attendance,
- The quantity of distributed materials, and
- The quantity of inquiries (e.g. phone calls, emails, social media posts, contest participation, testimonials, booth visits, etc.).

Qualitative Measurements – Relates to the quality or value of the information provided. Examples of qualitative evaluation for public education and outreach include:

- Presentation, email, and website surveys,
- Paying attention to audience participation and engagement,
- Administering a short quiz at the end of school presentations,
- Asking questions about presentation content at the beginning and the end to see if attitudes or knowledge of material has changed, and
- Asking participants what they can do to protect their source water at the end of presentations to measure potential community participation.

8.0 References

- Enviroscape [EnviroScape: Environmental Education Products \(envirosapes.com\)](https://envirosapes.com)
- National Groundwater Association. 2024. Groundwater Fundamentals. <https://www.ngwa.org/what-is-groundwater/About-groundwater>
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- United States Environmental Protection Agency. 2014-2016. Septic Smart Education Materials. Web. 2024. <https://www.epa.gov/septic/septicsmart-education-materials>
- United States Geological Survey. 2024. Water Science School. <https://www.usgs.gov/special-topics/water-science-school>

Attachment A

School Presentation Content Example

Attachment A

School Presentation Content Example

School presentations should last roughly 45 minutes. Introduce yourself and engage the students by asking a few questions:

Have you ever wondered where the water in your tap comes from?

Depending on the answers, the discussion can evolve. A discussion regarding the hydrologic cycle, groundwater aquifers, and how water is pumped from the aquifer to the tap is appropriate for the residents of Storey County.

Why is it important to protect drinking water at the source?

Protecting drinking water at the source may be difficult to understand for grade school or intermediate school students. The presenter may have to facilitate the discussion with statements, such as:

- *We rely on groundwater* – it’s the water we drink and the water that grows our food!
- Man-made products, such as gasoline, oil, and road salt can move through the soil and end up in our groundwater.

Demonstration of the Watershed Model

Invite the students to come close to see the watershed model and ask if they know:

- ✓ *What is a watershed?* Discuss what is displayed on the watershed model, such as the area of land and the different water bodies.
- ✓ *What is a contaminant?* Discuss various forms such as oil and grease, factory chemicals, lawn fertilizer, etc. Hand the “contaminants” to the students and let them sprinkle it around. Engage them and ask them what kind of contaminants are on the farm, on the lawns, on the road, etc.
- ✓ *How much rainfall does the community receive each year?* Discuss rainfall in Storey County, and then rain on the watershed using a spray bottle. This is also a good place to discuss overwatering. Demonstrate what happens if someone has a leaky sprinkler, and what happens to fertilizers on landscape turf. Discuss the water flowing down the hills and the streets, and then discuss infiltration. Discuss replacements for landscape turf, which in turn conserves the drinking water. Pull the plug once the water settles in the “lake” and move to the groundwater model.
- ✓ Discuss the importance of individual actions to protect and conserve drinking water sources.

Demonstration of the Groundwater Model

- ✓ Put the green and the red coloring into the lake and pond and pump different wells.
- ✓ Discuss aquifers, contaminants, pumping, water movement, etc.
- ✓ Talk about infiltration and how the pollution in the watershed model can end up in the groundwater.
- ✓ Revisit the question: ***Why is it important to protect drinking water at the source?***
- ✓ Invite the students to brainstorm about what they can do to protect their water sources.

Attachment B

Terms Defined

Attachment B

Terms Defined

Aquifer: a naturally occurring, underground area of water-soaked sand or gravel.

Best Management Practices: barriers, methods, measures, or practices designed to prevent or reduce water pollution.

Bureau of Safe Drinking Water (BSDW): the mission of BSDW is *to protect public health and the environment by providing oversight, guidance, and support, while fostering collaboration with safe drinking water partners*. Through the NDEP, the Source Water Protection Program is administered through the BSDW to help communities protect their drinking water.

Contamination: introduction of an undesirable chemical or biological substance not normally present in source water.

Emerging Contaminant: synthetic or naturally occurring chemicals or microorganisms that are not commonly monitored but have the potential to enter the environment and cause known or suspected adverse ecological and/or human health effects.

Ground water: water found beneath the earth's surface. The water is pumped to the surface for drinking water.

Hydrologic Cycle: the sum of all processes in which water circulates from the land and ocean surface to the atmosphere and back in the form of precipitation.

Integrated Source Water Protection Program (ISWPP): ISWPP is a comprehensive, voluntary approach designed to help communities develop and implement a plan that protects their drinking water supplies. ISWPP is a program created and monitored through BWPC.

Nevada Division of Environmental Protection (NDEP): NDEP will protect the State's natural resources through an effective, efficient program of permitting, enforcement of regulations, monitoring the environment, pollution prevention and remediation based on state and federal laws. NDEP encourages, motivates, and supports communities' local source water protection activities; manages, shares, and integrates source water protection information; develops federal, state, and local source water protection partnerships; and integrates and implements source water protection at the state level.

Surface water: consists of springs, streams, and rivers that become our drinking water.

Source Water: consists of bodies of water such as lakes, springs, streams, rivers, and ground water/aquifers that become our water supply.

Watershed: the area of land that drains to a common water body like a stream, river, or lake.

Water Conservation: includes all policies, strategies, and activities which support careful use and preservation of the water supply.

Attachment C

Educational Flyers

What is a Watershed?

A watershed is all the land that drains to the same river or lake. Water travels from the highest points at the watershed edge to the lowest point at the bottom of the watershed. Wherever you are, you are in a watershed!

When it rains, some water travels over the land surface to the nearest stream or creek. This water is called surface runoff or stormwater. As the stormwater flows, it picks up any contaminants lying on the surface – pesticides and fertilizer from lawns, manure from farms, sediment from construction sites, and oil and gas from roads. Small streams join to form larger and larger rivers, until the water – and any contaminants it is carrying – reaches the water sources.

Some precipitation, instead of traveling over the land, will percolate into the soil and reach the groundwater. Similarly, the groundwater may pick up nitrates from failing septic systems, gasoline from leaky storage tanks, and industrial chemicals from improper dumping. The groundwater ultimately flows into one of the rivers or lakes in the watershed.



Ways to Help

What can you do?

- Dispose of motor oil at a garage that will recycle it. Never pour oil on the ground in a storm drain or sewer on the street.
- Purchase alternative products that contain fewer hazardous ingredients.
- Use only as much as you need and use up the product completely.
- Minimize the use of pesticides and herbicides on your lawn and garden. Use biodegradable products when available.
- Do not pour used or unused chemicals or paints down the drain or flush in the toilet.
- Use water-based paints if possible. Sweep up dust and paint chips from sanding or stripping activities.
- NEVER mix leftover chemicals with other materials.
- Make sure all chemicals are properly labeled and stored away from children and pets.
- Contact your county solid waste department for HHW collection events in your area.
- Remember: anything you throw or store on the ground can find its way into the groundwater. Store and handle chemicals properly.

For more information:

Check your county's website for programs available.

HOMEOWNER GUIDE

Proper Disposal of Household Hazardous Waste



Storey County Community
Source Water Protection Program



Remember, it's not just toxic to you!

Did you know that many household products are dangerous to our children, pets, and environment? Household cleaners, lawn & garden chemicals, gasoline, antifreeze, and many other substances need to be stored and disposed of properly.

When Household Hazardous Waste (HHW) makes its way into the environment, plants, animals, and humans can all be affected. Never throw away these materials into the trash or flushed down a drain.

All the items listed in this brochure should be carefully handled and disposed of according to directions. Check for HHW collection events sponsored by your municipality or the county government.

Examples of Household Hazardous Wastes

- ✓ Latex and oil-based paint
- ✓ Vehicle fluids like gasoline, used motor oil, and antifreeze
- ✓ Lawn & garden fertilizers, pesticides, and herbicides
- ✓ Pool Chemicals
- ✓ Solvents
- ✓ Household cleaners
- ✓ Electronic devices
- ✓ Asphalt and driveway sealants
- ✓ Ammunition
- ✓ Vehicle batteries
- ✓ Lithium/NiCad batteries
- ✓ Outdated or unused pharmaceuticals



How does drinking water sometimes become polluted?

Your drinking water may become polluted when substances that are harmful to human health enter the groundwater or surface source, like a lake or reservoir. Common pollutants include gasoline or oil from leaking tanks, homeowner lawn and garden activities, salt from winter road maintenance, and other chemicals from stormwater runoff. Once water is contaminated, it must be treated or abandoned as a drinking water source. The expense of treating polluted water or finding a new source of drinking water can be avoided through source water protection.



What is a Septic System?

Households that are not on a public sewer system use an on-lot septic system to dispose of their wastewater. Household wastewater contains all the wastes from our homes, including toilet use, bathroom and kitchen use, laundry, and other activities. It contains human waste, detergents, chemicals, grease, oils, and many other substances. If not treated properly, these substances can travel through soil and potentially contaminate local waterways.

Most systems have three components:

- **Septic Tank** – Tanks can be constructed from plastic, fiberglass, or concrete. Tank size and specifications are determined by state regulation, and systems are permitted and approved by local agencies.
- **Drainfield** – a drainfield is constructed from a series of perforated pipes buried in gravel-filled trenches in the soil. When wastewater enters the septic tank, an equal amount (known as *effluent*) is forced into the drainfield for treatment.
- **Soil** – the soil encompassing the trenches treats the wastewater by allowing infiltration of the liquids to neutralize most of the pollutants. The effluent eventually is incorporated into groundwater.



Example of Typical Septic System

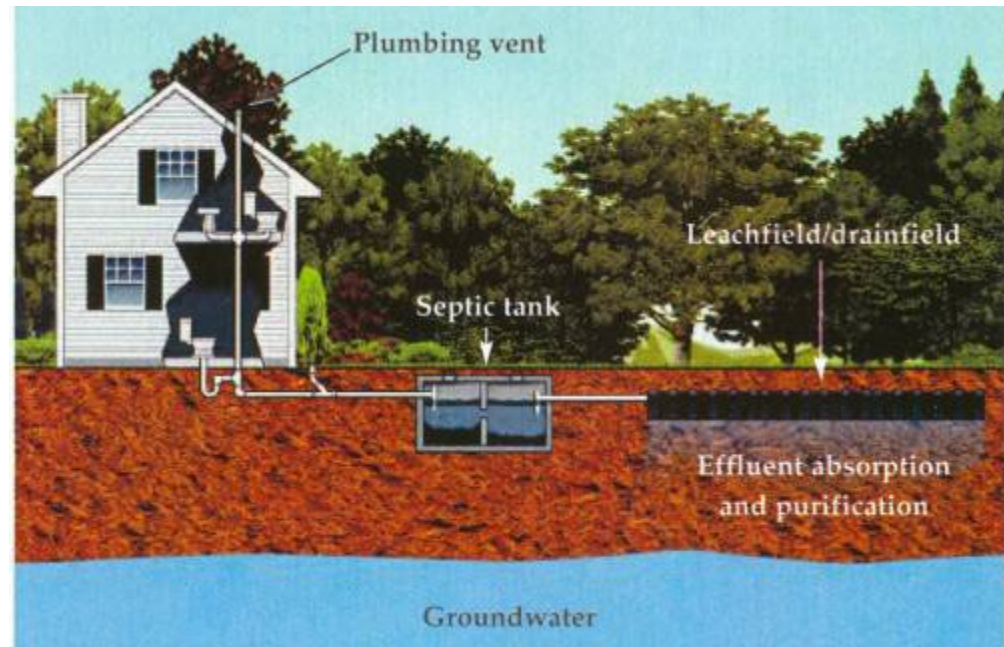


Photo courtesy of Infiltrator Systems, Inc.

Why Should I Maintain My Septic System?

- ***Saves Money!*** Repairing or replacing a septic system can be very expensive. Inspecting and pumping the system every 3 years helps keep the components working correctly.
- ***Protects Your Health!*** Bacteria and viruses are found in the wastewater, and a functional septic system removes most of the organisms during treatment.
- ***Protects the Environment!*** What goes into your septic system may end up in your drinking water source. Refrain from using cleaners and other chemicals that may eventually be discharged from your system and soak into the ground.

Flushing Do's and Don'ts

What are the WORST items to dump down the drain:

- **WIPES** – Wipes (even “flushable” wipes) do not break down like toilet paper and can clog household sewer pipes and pipes at the treatment plant. This can be expensive to fix.
- **HOUSHOLD CHEMICALS** like cleaners, painting products, and pesticides contain some chemicals that cannot be removed during the wastewater treatment process. If possible, used biodegradable or plant-based cleaning products that are more easily treated.
- **FATS, OILS, GREASE** (FOGs) Cooking grease, leftover animal fats, and motor



Photo Courtesy of Rock Hill, SC

oil can become solid, causing buildup in pipes when they are poured in the drain, or washed away. Pour FOGs into a container to solidify and throw away in the trash.

What Else Should Never Go In A Drain:

- Medicines/Prescriptions
- Kitty Litter
- Feminine Products
- Cigarette Butts
- Diapers
- Disposable Toilet Brushes

Protecting Source Water

Local water and wastewater operators are working non-stop provide residents with services that protect the environment, and they can use your help! Everyone has an important part to play in protecting drinking water – today and for the future. Source water protection is a community effort – we hope you will read this, and other information forwarded to you, and help protect your water supply.

Why do water sources sometimes become polluted? A water supply can become polluted when substances that are harmful to human health enter the groundwater, rivers, reservoir, or springs. Common pollutants include gasoline or oil from leaking tanks, nitrate and pesticides from agriculture and lawns, pathogens from livestock and pet waste, salt from winter road maintenance, and chemicals from industrial facilities. Once drinking water is contaminated, it must be treated or abandoned as a drinking water source. The expense of treating polluted water or finding a new source of drinking water can be avoided through source water protection.

CITIZEN'S GUIDE

Wastewater in Your Home



Storey County Community
Source Water Protection Program



What Happens to Our Wastewater?

Household wastewater contains all the wastes from our homes, including toilet use, bathroom and kitchen use, laundry, and other activities. It contains human waste, detergents, chemicals, fats, oils, grease, and many other substances. This brochure helps people understand the complex process of treating wastewater.

Households that are on a public sewer system have these wastes treated at a local wastewater treatment plant. They are designed to handle water, human waste, and toilet paper.



Anything else that goes down the drain can damage both the treatment system and the environment! Before you dump something in a sink, think ***Should this go down the drain?***

What Are The Worst Things To Dump in Drains?

- Wipes – even “flushable” wipes!
- Fats, Oils, and Grease
- Household Chemicals

Example of a Typical Wastewater Treatment Plant

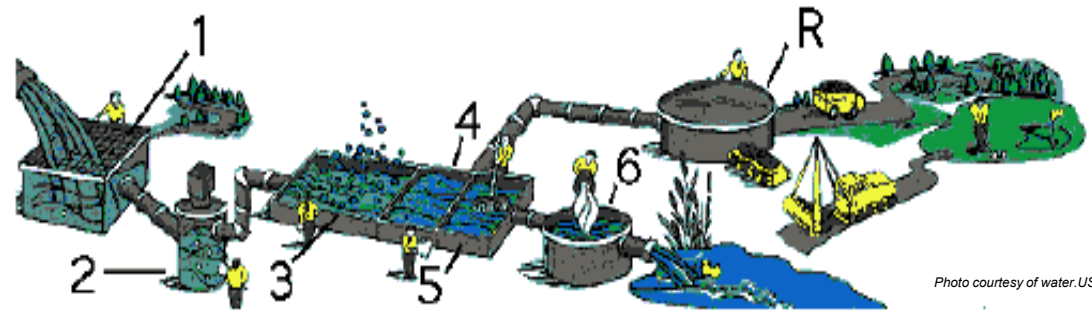


Photo courtesy of water.USGS.gov

The Primary Treatment Process

- 1. Screening:** Wastewater entering the treatment plant includes items like wood, rocks, and even dead animals. Unless they are removed, they could cause problems later in the treatment process.
- 2. Pumping:** Gravity moves sewage from your home to the treatment plant. If the plant is built above the ground level, the wastewater has to be pumped up to the aeration tanks (item 3).
- 3. Aerating:** One of the first steps is to shake up the sewage and expose it to air. This causes some of the dissolved gases (such as hydrogen sulfide, which smells like rotten eggs) that taste and smell bad to be released from the water. Wastewater enters a series of long, parallel concrete tanks. Each tank is divided into two sections. In the first section, air is pumped through the water. As organic matter decays, it uses up oxygen. Aeration replenishes the oxygen. The 'grit' (coffee grounds, sand and other small, dense particles) will settle out.
- 4. Removing sludge:** Wastewater then enters the second section or sedimentation tanks. Here, the organic sludge settles out of the wastewater and is pumped out of the tanks. Some of the water is removed in a step called thickening and then the sludge is processed in large tanks called digesters.
- 5. Removing scum:** As sludge is settling to the bottom of the sedimentation tanks, lighter materials are floating to the surface. This 'scum' includes grease, oils, plastics, and soap. Slow-moving rakes skim the scum off the surface of the wastewater. Scum is thickened and pumped to the digesters along with the sludge. Many cities also use filtration in sewage treatment. After the solids are removed, the liquid sewage is filtered through a substance, usually sand, by the action of gravity. This method gets rid of almost all bacteria, reduces turbidity and color, removes odors, reduces the amount of iron, and removes most other solid particles that remained in the water.
- 6. Killing bacteria:** Finally, the wastewater flows into a 'chlorine contact' tank, where the chemical chlorine is added to kill bacteria, which could pose a health risk, just as is done in swimming pools. The chlorine is mostly eliminated as the bacteria are destroyed, but sometimes it must be neutralized by adding other chemicals. This protects fish and other marine organisms, which can be harmed by the smallest amounts of chlorine.

The treated water (called effluent) is then discharged to a local river or the ocean.

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INDUSTRIAL STORMWATER

FACT SHEET SERIES

Sector K: Hazardous Waste Treatment, Storage, or Disposal Facilities



U.S. EPA Office of Water
EPA-833-F-06-026
February 2021

What is the NPDES stormwater program for industrial activity?

Activities, such as material handling and storage, equipment maintenance and cleaning, industrial processing or other operations that occur at industrial facilities are often exposed to stormwater. The runoff from these areas may discharge pollutants directly into nearby waterbodies or indirectly via storm sewer systems, thereby degrading water quality.

In 1990, the U.S. Environmental Protection Agency (EPA) developed permitting regulations under the National Pollutant Discharge Elimination System (NPDES) to control stormwater discharges associated with eleven categories of industrial activity. As a result, NPDES permitting authorities, which may be either EPA or a state environmental agency, issue stormwater permits to control runoff from these industrial facilities.

What types of industrial facilities are required to obtain permit coverage?

This fact sheet specifically discusses stormwater discharges from hazardous waste treatment, storage, or disposal facilities (TSDF), including those that are operating under interim status or a permit under Subtitle C of the Resource Conservation and Recovery Act (RCRA). Some industrial facilities that generate hazardous waste have on-site capacity to store, treat, and even dispose of their waste. Many hazardous waste generators, however, send their waste offsite to a TSDF.

What does an industrial stormwater permit require?

Common requirements for coverage under an industrial stormwater permit include development of a written stormwater pollution prevention plan (SWPPP), implementation of control measures, and submittal of a request for permit coverage, usually referred to as the Notice of Intent or NOI. The SWPPP is a written assessment of potential sources of pollutants in stormwater runoff and control measures that will be implemented at your facility to minimize the discharge of these pollutants in runoff from the site. These control measures include site-specific best management practices (BMPs), maintenance plans, inspections, employee training, and reporting. The procedures detailed in the SWPPP must be implemented by the facility and updated as necessary, with a copy of the SWPPP kept on-site. The industrial stormwater permit also requires collection of visual, analytical, and/or compliance monitoring data to determine the effectiveness of implemented BMPs. For more information on EPA's industrial stormwater permit and links to State stormwater permits, go to www.epa.gov/npdes/stormwater and click on "Industrial Activity."

What pollutants are associated with activities at my facility?

Pollutants conveyed in stormwater discharges from facilities involved with the storage, treatment and disposal of hazardous waste will vary given the diversity and quantity of hazardous waste handled at TSDFs. There are a number of factors that influence to what extent industrial activities and significant materials can affect water quality. TSDFs regulated under RCRA Subtitle C, however, are required to control much of their stormwater runoff through secondary containment (e.g., secondary

containment for tank systems). When a spill of a listed hazardous waste occurs, for example, the spilled material and any stormwater that comes into contact with the material is a hazardous waste under RCRA and must be cleaned up and managed in accordance with all applicable regulations.

In addition to the types of hazardous materials handled and the procedures for controlling runoff at a particular TSDF, there are a number of factors that influence to what extent industrial activities and significant materials can affect water quality.

- ◆ Geographic location
- ◆ Topography
- ◆ Extent of impervious surfaces (i.e., concrete or asphalt)
- ◆ Type of ground cover (e.g., vegetation, crushed stone, or dirt)
- ◆ Outdoor activities (e.g., only storage, or storage plus treatment and disposal)
- ◆ Size of the operation (e.g., volume of wastes handled)
- ◆ Type, duration, and intensity of precipitation events

The activities, pollutant sources, and pollutants detailed in Table 1 are commonly found at hazardous waste treatment, storage, or disposal facilities.

Table 1. Common Activities, Pollutant Sources, and Associated Pollutants at Hazardous Waste Treatment, Storage, or Disposal Facilities

Activity	Pollutant Source	Pollutant
Bulk Liquid/Solid Transfer	Spills during transfer of chemicals between above ground storage tank and drums or other containers.	Acids, solvents, ammonia, hydroxides, detergents, fuels
	Spills or leaks of hazardous materials used for operations	Total suspended solids (TSS), chemical oxygen demand (COD) pH, biological-oxygen demand (BOD)
	Outdoor storage or handling of chemicals	Organic and inorganic compounds.
	Unloading of chemicals and other hazardous materials	
	Leaks and spills of acids or solvents from drums or tanks	
Hazardous Material Storage	Spills or leaks	Organic and inorganic compounds
	Residual hazardous material due to poor housekeeping	
Waste Handling & Disposal	Chemical mixing	Mixed waste which can limit recyclables
Vehicle and equipment fueling and maintenance	Vehicle fueling and maintenance activities, outdoor storage tanks, and drums of gas, diesel, kerosene, lubricants, solvents	Oil and grease (O&G), diesel, gasoline, TSS, antifreeze
Building and Grounds Maintenance	Storage of pesticides and other chemicals	Pesticides, oxygen-demanding substances, sediments, nutrients, organics, and toxicants
	Application of chemicals	
Illicit discharges	Improper connection of floor, sink, or process wastewater drains to storm sewers	Dependent on source

Note: Activities may have additional pollutant sources that contain PFAS and can come into contact with stormwater discharges. Per- and polyfluoroalkyl substances (PFAS) are a group of man-made chemicals that include PFOA, PFOS, GenX, and many other chemicals.

What BMPs can be used to minimize contact between stormwater and potential pollutants at my facility?

A variety of BMP options may be applicable to eliminate or minimize the presence of pollutants in stormwater discharges from hazardous waste treatment, storage, or disposal facilities. You will likely need to implement a combination or suite of BMPs to address stormwater runoff at your facility. Your first consideration should be for pollution prevention BMPs, which are designed to prevent or minimize pollutants from entering stormwater runoff and/or reduce the volume of stormwater

requiring management. Prevention BMPs can include regular cleanup, collection and containment of debris in storage areas, and other housekeeping practices, spill control, and employee training. It may also be necessary to implement treatment BMPs, which are engineered structures, intended to treat stormwater runoff and/or mitigate the effects of increased stormwater runoff peak rate, volume, and velocity. Treatment BMPs are generally more expensive to install and maintain and include oil-water separators, wet ponds, and proprietary filter devices.

Facilities in this industrial sector must already be in compliance with the standards for operating a hazardous waste treatment, storage, or disposal facility as established under RCRA. Due to previously imposed requirements on hazardous waste treatment, storage, or disposal facilities, stormwater BMPs are already employed at most TSDFs. These BMPs include:

- ◆ Roofs or other forms of permanent cover for storage areas.
- ◆ Secondary containment, capable of preventing stormwater run-on from entering the system or with the capacity to contain the volume of the tank plus precipitation from a 25-year, 24-hour rainfall event, for tank systems.
- ◆ Detention/retention ponds and filtering devices.
- ◆ Daily and weekly inspections of tank systems and containers, respectively. These inspections, which should already take place, will be incorporated into facility stormwater pollution prevention plans.
- ◆ Employee training already should be occurring, will need to be expanded as necessary to include issues concerning stormwater management.

BMPs must be selected and implemented to address the following:

Good Housekeeping Practices

Good housekeeping is a practical, cost-effective way to maintain a clean and orderly facility to prevent potential pollution sources from coming into contact with stormwater. It includes establishing protocols to reduce the possibility of mishandling materials or equipment and training employees in good housekeeping techniques. Common areas where good housekeeping practices should be followed include trash containers and adjacent areas, material storage areas, vehicle and equipment maintenance areas, and loading docks. Good housekeeping practices must include a schedule for regular pickup and disposal of garbage and waste materials and routine inspections of drums, tanks, and containers for leaks and structural conditions. Practices also include containing and covering garbage, waste materials, and debris. Involving employees in routine monitoring of housekeeping practices has proven to be an effective means of ensuring the continued implementation of these measures. Industrial facilities can conduct activities that use, store, manufacture, transfer, and/or dispose of PFAS containing materials. Successful good housekeeping practices to minimize PFAS exposure to stormwater could include inventorying the location, quantity, and method of storage; using properly designed storage and transfer techniques; providing secondary containment around chemical storage areas; and using proper techniques for cleaning or replacement of production systems or equipment.

Minimizing Exposure

Where feasible, minimizing exposure of potential pollutant sources to precipitation is an important control option. Minimizing exposure prevents pollutants, including debris, from coming into contact with precipitation and can reduce the need for BMPs to treat contaminated stormwater runoff. It can also prevent debris from being picked up by stormwater and carried into drains and surface waters. Examples of BMPs for exposure minimization include covering materials or activities with temporary structures (e.g., tarps) when wet weather is expected or moving materials or activities to existing or new permanent structures (e.g., buildings, silos, sheds). Even the simple practice of keeping a dumpster lid closed can be a very effective pollution prevention measure. Another example could include locating PFAS-containing materials and residues away from drainage pathways and surface waters.

Erosion and Sediment Control

BMPs must be selected and implemented to limit erosion on areas of your site that, due to topography, activities, soils, cover, materials, or other factors are likely to experience erosion. Erosion control BMPs such as seeding, mulching, and sodding prevent soil from becoming dislodged and should be considered first. Sediment control BMPs such as silt fences, sediment ponds, and stabilized entrances trap sediment after it has eroded. Sediment control BMPs should be used to back-up erosion control BMPs.

Management of Runoff

Your SWPPP must contain a narrative evaluation of the appropriateness of stormwater management practices that divert, infiltrate, reuse, or otherwise manage stormwater runoff so as to reduce the discharge of pollutants. Appropriate measures are highly site-specific, but may include, among others, vegetative swales, collection and reuse of stormwater, inlet controls, snow management, infiltration devices, and wet retention measures. Incorporating treatment like granular activated carbon may be helpful to remove certain pollutants like PFAS.

A combination of preventive and treatment BMPs will yield the most effective stormwater management for minimizing the offsite discharge of pollutants via stormwater runoff. Though not specifically outlined in this fact sheet, BMPs must also address preventive maintenance records or logbooks, regular facility inspections, spill prevention and response, and employee training.

All BMPs require regular maintenance to function as intended. Some management measures have simple maintenance requirements, others are quite involved. You must regularly inspect all BMPs to ensure they are operating properly, including during runoff events. As soon as a problem is found, action to resolve it should be initiated immediately.

Implement BMPs, such as those listed below in Table 2 for the control of pollutants at hazardous waste treatment, storage, or disposal facilities, to minimize and prevent the discharge of pollutants in stormwater. Identifying weaknesses in current facility practices will aid the permittee in determining appropriate BMPs that will achieve a reduction in pollutant loadings. BMPs listed in Table 2 are broadly applicable to hazardous waste treatment, storage, or disposal facilities; however, this is not a complete list and you are recommended to consult with regulatory agencies or a stormwater engineer/consultant to identify appropriate BMPs for your facility.

One activity that is not included in the RCRA requirements is loading and unloading operations and the potential for spills during this process. Table 2A identifies examples of effective BMPs for the control of pollutants associated with unloading and loading activities.

Table 2. BMPs for Potential Pollutant Sources at Hazardous Waste Treatment, Storage, or Disposal Facilities

Pollutant Source	BMPs
Hazardous Material Storage	<ul style="list-style-type: none"> <input type="checkbox"/> Confine storage of hazardous materials to designated areas. <input type="checkbox"/> Storage of hazardous materials should be indoors or in a covered area. <input type="checkbox"/> Store hazardous materials according to the manufacturer by installing concrete or non-absorbing berms around each specific hazardous material to avoid mixing wastes. <input type="checkbox"/> Ensure sufficient aisle space to ease inspections and handling. <input type="checkbox"/> Store hazardous materials away from high-traffic areas. <input type="checkbox"/> Implement inspection schedule for storage areas to detect problems before they occur. <input type="checkbox"/> Inspect all containers prior to placing in hazardous materials storage areas. <input type="checkbox"/> Store drums of hazardous material on spill pallets. <input type="checkbox"/> ASTs of hazardous materials should be stored within secondary containment equipped with self bailers, shutoff valve, and sumps. <input type="checkbox"/> Use dry cleanup methods instead of washing the areas down. <input type="checkbox"/> Train employees on proper storage techniques.
Bulk liquid/solid transfer areas	<ul style="list-style-type: none"> <input type="checkbox"/> Confine transferring activities to a designated area. <input type="checkbox"/> Performing transfer activities indoors or in a covered area. <input type="checkbox"/> Install an impervious or concrete pad under area for bulk transfer activities with area sloped toward sump or detention pond. <input type="checkbox"/> During transfer activities of hazardous materials always close drains using drain seals, drain guards, drain plugs, or a shutoff valve. <input type="checkbox"/> After drum use, washout should drain directly into a clarifier. <input type="checkbox"/> Place track pans or popup pool containers under tankers before transfer activities occur to prevent uncontained spills. <input type="checkbox"/> Avoid transferring bulks materials in the rain. <input type="checkbox"/> Inspect the transfer areas to detect problems before they occur. <input type="checkbox"/> Inspect all containers prior to transferring activities of hazardous materials. <input type="checkbox"/> Use dry cleanup methods instead of washing the areas down. <input type="checkbox"/> Train employees on proper bulk transfer techniques.
Bulk storage areas	<ul style="list-style-type: none"> <input type="checkbox"/> Confine bulk storage to a designated area. <input type="checkbox"/> Store hazardous bulk materials indoors or in a covered area. <input type="checkbox"/> Cover bulk materials with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). <input type="checkbox"/> Implement schedule to conduct inspections of the bulk storage areas to detect problems before they occur. <input type="checkbox"/> Inspect all containers prior to storage of outside bulk materials. <input type="checkbox"/> Store outside bulk materials within secondary containment either using concrete berms or other non absorbing materials. <input type="checkbox"/> Berm, curb or dike outside bulk storage areas. <input type="checkbox"/> Use dry cleanup methods instead of washing the areas down. <input type="checkbox"/> Train employees on proper outside bulk storage of hazardous material techniques.

Table 2. BMPs for Potential Pollutant Sources at Hazardous Waste Treatment, Storage, or Disposal Facilities

Pollutant Source	BMPs
Vehicle and equipment fueling	<ul style="list-style-type: none"> <input type="checkbox"/> Conduct fueling operations (including the transfer of fuel from tank trucks) on an impervious or contained pad or under a roof or canopy where possible. Covering should extend beyond spill containment pad to prevent rain from entering. <input type="checkbox"/> When fueling in uncovered area, use concrete pad (asphalt is not chemically resistant to the fuels being handled). <input type="checkbox"/> Use drip pans where leaks or spills of fuel can occur and where making and breaking hose connections. <input type="checkbox"/> Use fueling hoses with check valves to prevent hose drainage after filling. <input type="checkbox"/> Use spill and overflow protection devices including gutter guards, basin guard, and curb guards. <input type="checkbox"/> Keep spill cleanup material readily available. Clean up spills and leaks immediately. <input type="checkbox"/> Minimize/eliminate run-on into fueling area with diversion dikes, berms, curbing, surface grading or other equivalent measures. <input type="checkbox"/> Direct stormwater from fueling area into detention pond or filtering system. <input type="checkbox"/> Use dry cleanup methods for fuel area rather than hosing down the fuel area. Implement procedures for sweeping up absorbents as soon as spilled substance have been absorbed. <input type="checkbox"/> Fuel pumps should be protected from collisions by installing curbing or posts. <input type="checkbox"/> Discourage “topping off” of fuel tanks. <input type="checkbox"/> Implement inspection schedule of preventive maintenance on fuel storage tanks to detect potential leaks before they occur. <input type="checkbox"/> Train employees as well as any outside contractor, the proper fueling techniques.
Vehicle maintenance	<ul style="list-style-type: none"> <input type="checkbox"/> Eliminate floor drains that are connected to the storm or sanitary sewer; if necessary, install a sump that is pumped regularly. Collected wastes should be properly treated or disposed of by a licensed waste hauler. <input type="checkbox"/> Implement preventive measures to avoid spills and drips. <input type="checkbox"/> Conduct all cleaning at a centralized station so the solvents stay in one area. <input type="checkbox"/> If parts are dipped in liquid, remove them slowly to avoid spills. <input type="checkbox"/> Use drip pans, drain boards, and drying racks to direct drips back into a fluid holding tank for reuse. <input type="checkbox"/> Drain all parts of fluids prior to disposal. Oil filters can be crushed and recycled. <input type="checkbox"/> Promptly transfer used fluids to the proper container; do not leave full drip pans or other open containers around the shop. Empty and clean drip pans and containers. <input type="checkbox"/> Clean up leaks, drips, and other spills without using large amounts of water. Use absorbents for dry cleanup whenever possible. <input type="checkbox"/> Use dry cleanup methods instead of washing the areas down. <input type="checkbox"/> Prohibit the practice of hosing down an area where the practice would result in the discharge of pollutants to a stormwater system. <input type="checkbox"/> Do not pour liquid waste into floor drains, sinks, outdoor storm drain inlets, or other storm drains or sewer connections. <input type="checkbox"/> Maintain inventory of materials. <input type="checkbox"/> Eliminate or reduce quantity of hazardous materials and waste by substituting non- hazardous or less hazardous materials. <input type="checkbox"/> Label and track the recycling of waste material (e.g., used oil, spent solvents, batteries). <input type="checkbox"/> Store batteries and other significant materials inside or if stored outdoors, cover with tarps and stored on spill pallets

Table 2. BMPs for Potential Pollutant Sources at Hazardous Waste Treatment, Storage, or Disposal Facilities (continued)

Pollutant Source	BMPs
Vehicle maintenance (continued)	<ul style="list-style-type: none"> <input type="checkbox"/> Dispose of oily rags, oil filters, air filters, batteries, spent coolant, and degreasers in compliance with RCRA regulations. <p>Minimizing Exposure</p> <ul style="list-style-type: none"> <input type="checkbox"/> Perform all cleaning operations indoors or under covering when possible. Conduct the cleaning operations in an area with a concrete floor with no floor drainage other than to sanitary sewers or treatment facilities. <input type="checkbox"/> If operations are uncovered, perform them on a concrete pad that is impervious and contained. <input type="checkbox"/> Park vehicles and equipment indoors or under a roof whenever possible and maintain proper control of oil leaks/spills. <input type="checkbox"/> Check vehicles closely for leaks and use pans to collect fluid when leaks occur. <p>Management of Runoff</p> <ul style="list-style-type: none"> <input type="checkbox"/> Use berms, curbs, grassed swales or other diversion measures to ensure that stormwater runoff from other parts of the facility do not flow over the maintenance area. <input type="checkbox"/> Collect the stormwater runoff from the cleaning area and provide treatment or recycling. Discharge vehicle wash or rinse water to the sanitary sewer (if allowed by sewer authority), wastewater treatment, a land application site, or recycle on-site. DO NOT discharge washwater to a storm drain or to surface water. <p>Inspections and Training</p> <ul style="list-style-type: none"> <input type="checkbox"/> Inspect the maintenance area regularly to ensure BMPs are implemented. <input type="checkbox"/> Train employees on waste control and disposal procedures.
Vehicle and equipment storage and parking	<ul style="list-style-type: none"> <input type="checkbox"/> Store vehicles and equipment indoors. <input type="checkbox"/> Install berms and dikes in storage areas. <input type="checkbox"/> Use absorbents and dry cleanup methods. <input type="checkbox"/> Clean pavement surface to remove oil and grease. <input type="checkbox"/> Use drip pans under all vehicles and equipment waiting for maintenance. <input type="checkbox"/> Cover the storage area with a roof. <input type="checkbox"/> Inspect the storage yard for filling drip pans and other problems regularly. <input type="checkbox"/> Train employees on procedures for storage and inspection items.

Table 2A. BMPs for Potential Pollutant Sources Associated with Unloading and Loading at Hazardous Waste Treatment, Storage, or Disposal Facilities

Pollutant Source	BMPs
Outdoor unloading and loading	<ul style="list-style-type: none"> <input type="checkbox"/> Confine loading/unloading activities to a designated area. <input type="checkbox"/> Performing loading/unloading activities indoors or in a covered area. <input type="checkbox"/> Cover loading/unloading area with permanent cover (e.g., roofs) or temporary cover (e.g., tarps). <input type="checkbox"/> Close storm drains during loading/unloading activities in surrounding areas. <input type="checkbox"/> Avoid loading/unloading materials in the rain. <input type="checkbox"/> Inspect the unloading/loading areas to detect problems before they occur. <input type="checkbox"/> Inspect all containers prior to loading/unloading of any raw or spent materials. <input type="checkbox"/> Berm, curb or dike loading/unloading areas. <input type="checkbox"/> Use dry cleanup methods instead of washing the areas down. <input type="checkbox"/> Train employees on proper loading/unloading techniques.

What if activities and materials at my facility are not exposed to precipitation?

The industrial stormwater program requires permit coverage for a number of specified types of industrial activities. However, when a facility is able to prevent the exposure of ALL relevant activities and materials to precipitation, it may be eligible to claim no exposure and qualify for a waiver from permit coverage.

If you are regulated under the industrial permitting program, you must either obtain permit coverage or submit a no exposure certification form, if available. Check with your permitting authority for additional information as not every permitting authority program provides no exposure exemptions.

Where do I get more information?

For additional information on the industrial stormwater program see <https://www.epa.gov/npdes/npdes-stormwater-program>

A list of names and telephone numbers for each EPA Region or state NPDES permitting authority can be found at <https://www.epa.gov/npdes/npdes-state-program-information>

References

Information contained in this Fact Sheet was compiled from EPA's past and current Multi-Sector General Permits and from the following sources:

- ◆ City of Phoenix, Street Transportation Department, Storm Water Management Section. 2004. Prevent Stormwater Contamination Best Management Practices for: Section K - Hazardous Waste Facilities (Typically RCRA subtitled) SIC Code - NA/NAICS Code - 562211. SIC Codes: 3210-3299."
- ◆ Naval Facilities Engineering Service Center. "Storm Water Best Management Practices (BMP) Decision Support Tool: Storm Water Pollution Prevention Options by Category. Category: Hazardous Waste Storage, Treatment, and Recycling."
- ◆ Orange County, California; Watershed & Coastal Resources Division.
- ◆ U.S. EPA, September 1992. Stormwater Management for Industrial Activities: Developing Pollution Prevention Plans and Best Management Practices. EPA 832-R-92-006.
- ◆ U.S. EPA, Office of Science and Technology. 1999. Preliminary Data Summary of Urban Stormwater Best Management Practices. EPA-821-R-99-012.
- ◆ U.S. EPA, Office of Wastewater Management. NPDES Stormwater Multi-Sector General Permit for Industrial Activities (MSGP).

HOMEOWNER'S MAINTENANCE CHECKLIST

Properly constructed private water supply systems require little routine maintenance. These simple steps will protect your system and investment:

1. Always use licensed or certified water well drillers and pump installers when a well is constructed, a pump is installed, or the system is serviced.
2. An annual well maintenance check, including a bacterial test, is recommended. Drinking water should be checked any time there is a change in taste, odor, or appearance, or when the well system is serviced.
3. Keep hazardous chemicals, such as paint, fertilizer, pesticides, and motor oil, far away from your well.
4. Periodically check the well cover or well cap on top of the casing (well) to ensure it is in good repair.
5. Always maintain proper separation between your well and buildings, waste systems or chemical storage facilities. Your professional contractor knows the rules.
6. Don't allow back-siphonage. When mixing pesticides, fertilizers, or other chemicals, don't put the hose inside the tank or container.
7. When landscaping, keep the top of your well at least 1 foot above the ground. Slope the ground away from your well for proper drainage.
8. Take care in working or mowing around your well. A damaged casing could jeopardize the sanitary protection of your well. Don't pile snow, leaves, or other materials around your well.
9. Be aware of changes in your well, the area around your well, or the water it provides.
10. When your well has come to an end of its serviceable life (usually 20+ years), have a qualified water well contractor decommission it after constructing your new system.

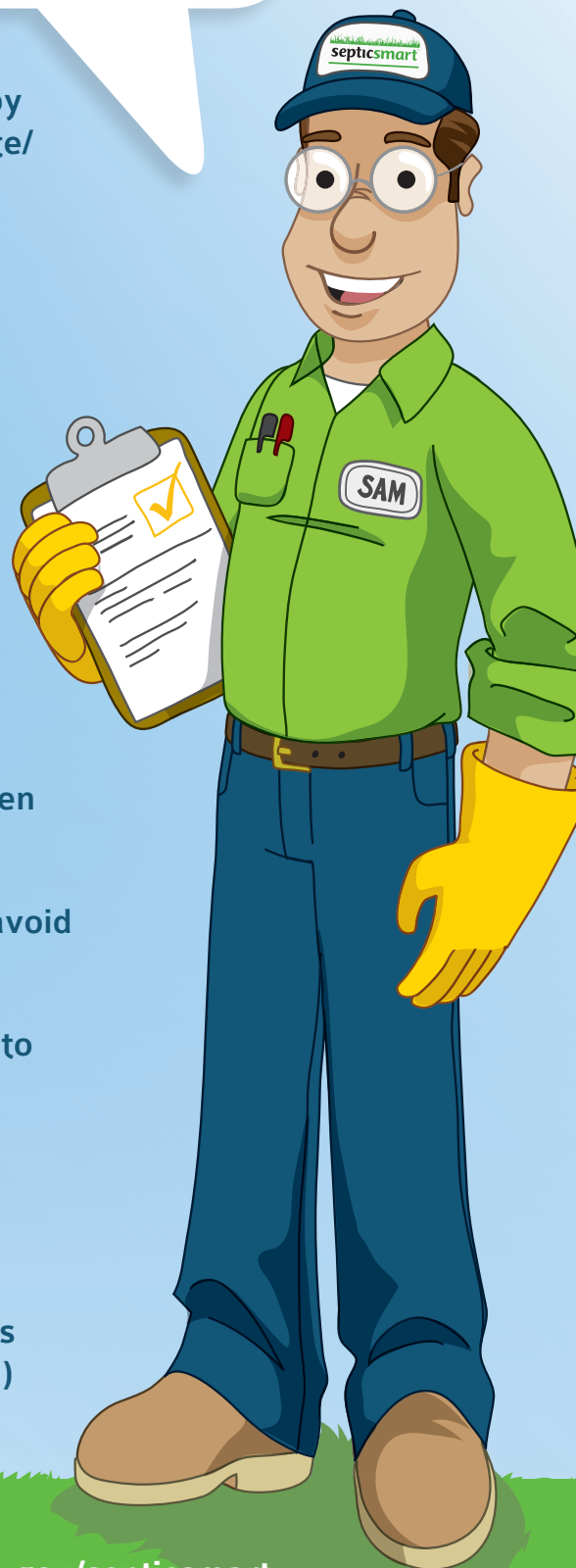
LOOKING FOR A GROUNDWATER PROFESSIONAL?
GO TO WELLOWNER.ORG/FIND-A-CONTRACTOR TODAY



WellOwner.org is supported by the Rural Community Assistance Partnership (RCAP.org), as part of the USEPA funded program "Improving Water Quality through Training and Technical Assistance to Private Well Owners."

Top 10 Ways to Be a Good Septic Owner

- ✓ Have your system inspected every three years by a qualified professional or according to your state/local health department's recommendations
- ✓ Have your septic tank pumped, when necessary, generally every three to five years
- ✓ Avoid pouring harsh products (e.g., oils, grease, chemicals, paint, medications) down the drain
- ✓ Discard non-degradable products in the trash (e.g., floss, disposable wipes, cat litter) instead of flushing them
- ✓ Keep cars and heavy vehicles parked away from the drainfield and tank
- ✓ Follow the system manufacturer's directions when using septic tank cleaners and additives
- ✓ Repair leaks and use water efficient fixtures to avoid overloading the system
- ✓ Maintain plants and vegetation near the system to ensure roots do not block drains
- ✓ Use soaps and detergents that are low-suds, biodegradable, and low- or phosphate-free
- ✓ Prevent system freezing during cold weather by inspecting and insulating vulnerable system parts (e.g., the inspection pipe and soil treatment area)



Storey County Household Hazardous Waste Disposal

Household Hazardous Waste (HHW) includes household cleaners, car batteries, pesticides, paints and solvents, motor oil, etc. Used motor oil, antifreeze, and car batteries are collected at the Virginia City Transfer Station. Additionally, E-waste is accepted at the Lockwood Landfill. For more information about where to dispose of Household Hazardous Waste (HHW), visit:

https://www.storeycounty.org/government/departments/community_relations/transfer_station.php.

Transfer Station

Lockwood Landfill

2700 Mustang Road
Sparks, NV

Open Monday - Saturday

8:00 AM - 4:30 PM

Closed All Holidays

Storey County Transfer Station

E. Washington & R Street Virginia City, NV

Open Thursday - Saturday (winter hours)

8:00 AM - 3:30 PM

(closed: 12:00 - 12:30 PM)

Closed All Holidays

Beginning April 28, 2023

Open Friday - Sunday (summer hours)

8:00 AM - 3:30 PM

(closed: 12:00 - 12:30 PM)

Closed All Holidays

Dayton Transfer Station

5000 Enterprise Road
Dayton, NV

Open Saturday - Wednesday

8:00 AM - 4:30 PM

(closed: 12:00 - 12:30 PM)

Closed All Holidays

New Sunday Rate Reduction MOU 2021

Resident Free Dump Vouchers – Vouchers available for pickup at the Storey County Courthouse, County Managers Office

Storey County residents are entitled to three (3) free-dump vouchers per year to use at the Virginia City Transfer Station or the Lockwood Regional Landfill.

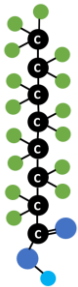
Up to three (3) cubic yards may be dumped for each voucher. Limitations include transfer station and landfill operation hours and days, certain waste type waste limitations, single-family residences only (no apartments or businesses). For additional details, review the solid waste franchise agreement, fees, and contact information are posted [here](#). View flyer [here](#). Customers may also contact a local Waste Management representative at the following email: storeycounty@wm.com



PFAS Explained:



Scientific studies have shown that exposure to some PFAS in the environment may be linked to harmful health effects in humans and animals.



What are PFAS?

PFAS are manufactured chemicals that have been used in industry and consumer products since the 1940s.

Because of their widespread use and their persistence in the environment, many PFAS are found in the blood of people and animals all over the world.

There are thousands of different PFAS, some of which have been more widely used and studied than others.



Are PFAS safe?

Research is ongoing to determine how exposure to different PFAS can lead to a variety of health effects. Studies have shown that exposure to certain levels of PFAS may lead to:



Cancer Effects

Increased risk of some cancers, including prostate, kidney, and testicular cancers.



Weight Effects

Increased cholesterol levels and/or risk of obesity.



Immune Effects

Reduced ability of the body's immune system to fight infections.



Developmental Effects

Low birth weight, accelerated puberty, bone variations, or behavioral changes.



Reproductive Effects

Decreased fertility or increased high blood pressure in pregnant women.

The more we learn about PFAS chemicals, the more we learn that certain PFAS can cause health risks even at very low levels. This is why anything we can do to reduce PFAS in water, soil, and air, can have a meaningful impact on health. EPA is taking action to reduce PFAS in water and in the environment. You can also take action if you remain concerned about your own risk.

Read on to learn where PFAS are coming from, how EPA is taking action on PFAS, and what actions you can take.

PFAS Explained:



Where are PFAS found?

Most people in the United States have been exposed to some PFAS. People can be exposed to PFAS by touching, drinking, eating, or breathing in materials containing PFAS. PFAS may be present in:



Drinking Water

An important potential source of PFAS exposure.



Waste Sites

Soil and water at or near landfills, disposal sites, and hazardous waste sites.



Fire Extinguishing Foam

Used in training and emergency response events at airports and firefighting training facilities.



Facilities

Chrome plating, electronics, and certain textile and paper manufacturers that produce or use PFAS.



Consumer Products

Stain- or water-repellent, or non-stick products, paints, sealants, and some personal care products.



Food Packaging

Grease-resistant paper, microwave popcorn bags, pizza boxes, and candy wrappers.



Biosolids

Fertilizer from wastewater treatment plants used on agricultural lands can affect ground and surface water.



Food

Fish caught from water contaminated by PFAS and dairy products from livestock exposed to PFAS.

Very little of the PFAS in water can get into your body through your skin, so, showering, bathing, and washing dishes in water containing PFAS are unlikely to significantly increase your risk.

EPA's researchers and partners across the country are working hard to understand how much PFAS people are exposed to and how.



Keep reading to find out how EPA is taking action on PFAS.



EPA is taking action to address PFAS

In October 2021, EPA released its PFAS Strategic Roadmap, which highlights concrete actions the Agency will take across a range of environmental media and EPA program offices to protect people and the environment from PFAS contamination. The Roadmap is guided by three primary goals:



Research

Invest in research, development, and innovation



Restrict

Prevent PFAS from entering air, land, and water



Remediate

Broaden and accelerate the cleanup of PFAS contamination

Since the Roadmap's release, EPA has taken a number of key actions including:



- Began distributing \$10 billion in funding to address emerging contaminants under the Bipartisan Infrastructure Law (BIL).
- Issued health advisories for PFAS and proposed new, legally enforceable Maximum Contaminant Levels (MCLs) for six PFAS substances known to occur in drinking water.
- Proposed to designate two PFAS as CERCLA hazardous substances.
- Laid the foundation for enhancing data on PFAS.

To learn more about the PFAS Strategic Roadmap and key actions taken by EPA scan the QR code.



Turn the page to learn what actions you can take.

PFAS Explained:



Actions you can take: Protect your drinking water

1

Find out if PFAS are in your drinking water:

- If you get your water from a public drinking water system, reach out to your local water utility to see if they do testing. Or, you can choose to test the water yourself.
- If you get your water from a home drinking water well, you are responsible for conducting regular testing.
- If you choose to test your water yourself, contact your state environmental or health agency for detailed advice or to obtain a list of state-certified laboratories using EPA-developed testing methods in drinking water.

2

Compare your results to your state standards for safe levels of PFAS in drinking water or to EPA's Health Advisory Levels (HALs) for PFAS.

Scan this code
for more
information
about HALs:



3

If you remain concerned about the level of PFAS in your drinking water:

- Contact your state environmental and health agencies for recommendations.
- Consider installing an in-home water treatment (e.g., filters) that are certified to lower the levels of PFAS in your water.
- Consider using an alternate water source for activity when your family might swallow water.

EPA makes frequent updates to its PFAS website:



4

To learn more about PFAS, scan the QR code to the right or go to <https://www.epa.gov/pfas>.

Keep it Flowing!

A Guide to Caring for Your Septic System

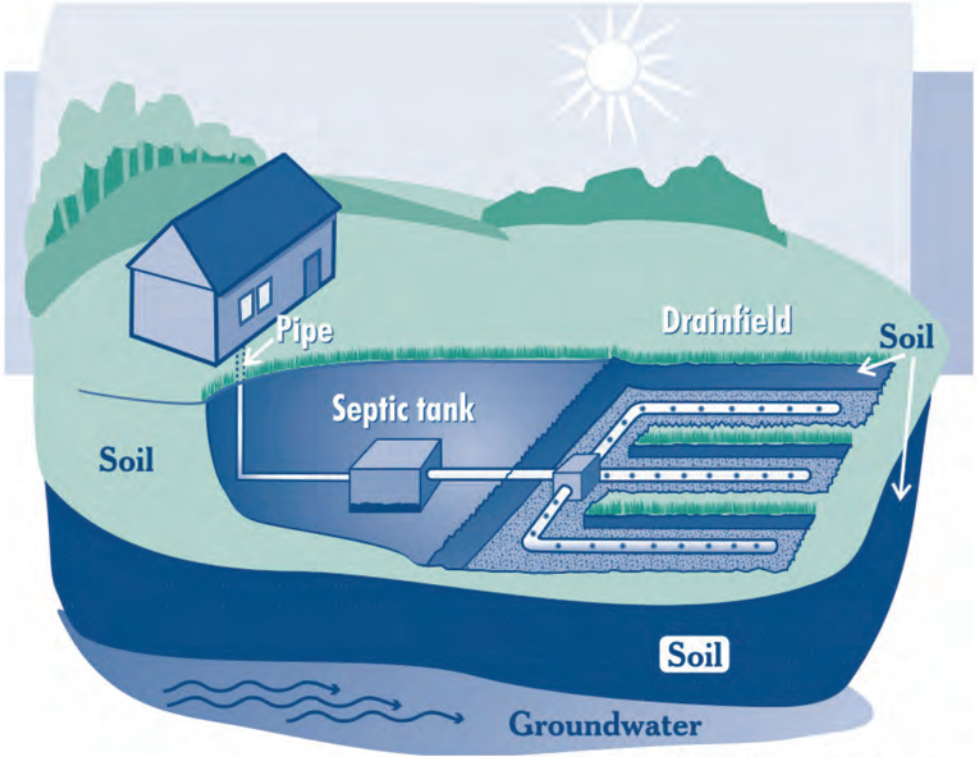


Illustration courtesy of U.S. Environmental Protection Agency



Your Precast Concrete Septic Tank

Congratulations on your new precast concrete septic tank! A high-quality precast concrete tank is an important part of your septic system. With proper care, it will provide you with many years of reliable service.

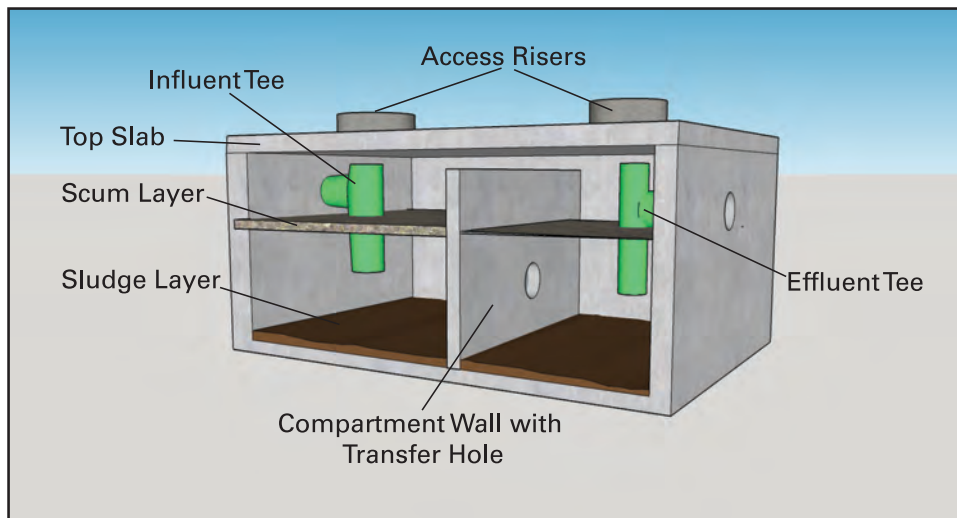
Septic systems come in many styles and may include a variety of components that require additional service, but the same basic care guidelines apply to nearly all septic systems.

Check with your installer or local Health Department if you have questions. Or, see the list of resources at the end of this booklet.

Top 4 Things You Can Do to Protect Your System

1. Regularly inspect your system and pump your tank as necessary.
2. Use water efficiently.
3. Don't dispose of household hazardous wastes in sinks or toilets.
4. Take care of your drain field.

-Environmental Protection Agency





A Long-Lasting Septic System

With proper care and routine maintenance, your septic system will last a long time. It is important to follow these simple guidelines to ensure years of trouble-free service.

- It is extremely important to keep man-made materials from entering your septic system. So never flush plastic wrappers, diapers, tampons, coffee grounds, cigarette butts, cooking fats, paint or food items.
- Using a garbage disposal will cause your tank to fill more rapidly. Many states require larger tanks if garbage disposals are used.
- Determine how often you need to have your tank pumped based on its size, number of people living in the house and usage patterns. Your installer may be able to help you determine a schedule for inspections and pumping.
- Divert roof drains and water from the driveway away from the septic system.
- Draw a diagram marking the location of your septic tank and disposal field and keep it in a handy place.
- Never park on or drive through the disposal field. Do not park or drive over the tank, unless it is traffic-rated. Cars, trucks, excavating equipment and other heavy equipment will damage the system. Lawn mowers and lawn tractors are acceptable.

What's in the Tank?

Your precast concrete septic tank is a high-quality, watertight container that holds wastewater long enough to allow solids to settle out (sludge) and oil and grease to float to the surface (scum).

Compartments in the tank prevent the sludge and scum from leaving the tank and traveling into the drain field.

Frequently Asked Questions

Why should I maintain my septic system?

When septic systems are properly designed, constructed and maintained, they effectively reduce or eliminate most human health or environmental threats posed by pollutants in household wastewater. However, they require regular maintenance or they can fail. Septic systems need to be monitored to ensure that they work properly throughout their service lives.

How often does my system need to be pumped?

Your installer should be able to help you determine how often your system needs to be inspected and pumped.

How do I know if I have a blocked pipe, a full septic tank or a clogged disposal field?

Signs of a failing system include slow draining or flushing of toilets; sewage backup into the house; sewage odors near the tank; and sewage in the lawn. Problems can be difficult to diagnose, so it is best to call a professional if you experience any of these situations.

Should I use a septic system additive to help keep the tank clean?

Products are available that claim to break down sludge in septic tanks so that they never need to be pumped. While there is some disagreement on the effectiveness of additives, the typical septic tank will contain all the microbes it needs for effective treatment. The best way to ensure your system works properly is through periodic pumping and regular inspections.

Can too much water damage the system?

The best way to ensure the long-term health of your system is to avoid flooding it with water. Leaking faucets and older toilets that use lots of water make your system less efficient. Washing multiple loads of clothes on the same day will also tax many septic systems. In general it's a good idea to monitor the use of water in your home and try to avoid using too much water at the same time.

How Does it Work?

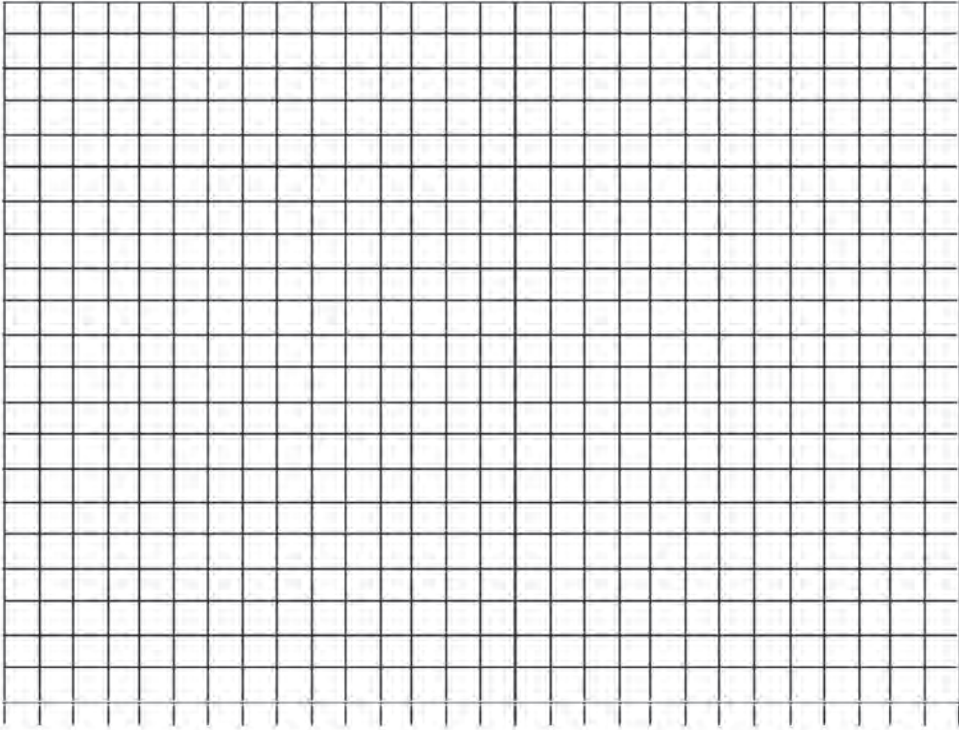
Everything that goes down the drain and toilet ends up in the septic tank. There it is greeted by billions of microscopic bacteria that break down the waste as it is filtered and separated through a variety of chambers (see diagram). The filtered waste leaves the tank and, in most cases, passes through a disposal field – a series of underground perforated pipes – where it is again filtered by the soil before it reaches the water table.

Septic System Maintenance Record

Date	Description

Diagram of Septic System Location

So you remember the exact location of your septic tank and disposal field in relation to your house, make a diagram showing the house, the tank and drain field.



For More Information

Environmental Protection Agency

epa.gov/septic

National Small Flows Clearinghouse

nesc.wvu.edu

National Precast Concrete Association

precast.org/precast-product/septic-tanks/

National Onsite Wastewater Recycling Association

nowra.org

Find a Local Professional

septiclocator.com

National Association of Wastewater Transporters

nawt.org

What Does an Inspection Include?

- Locating the system
- Uncovering access holes
- Flushing the toilets
- Checking for signs of backup
- Measuring scum and sludge layers
- Identifying any leaks
- Inspecting mechanical components
- Pumping the tank (if necessary)



YOUR LOCAL SERVICE PROVIDER IS:

Attachment D

Online Resources

Attachment D

Online Resources

For more information on your drinking water, visit local and regional websites (links may change) which support source water protection and conservation education and the State of Nevada Integrated Source Water Protection Program. Go to:

Source Water Protection

Association of State Drinking Water Administrators – Stormwater Calculator:

<https://www.asdwa.org/2013/07/26/national-stormwater-calculator-helps-manage-stormwater-runoff/>

Association of State Drinking Water Administrators – Stormwater BMPs: <https://stormwater-1.itrcweb.org/>

Association of State Drinking Water Administrators - Source Water Protection:

<https://www.asdwa.org/source-water/>

Nevada Integrated Source Water Protection Program: <https://ndep.nv.gov/water/source-water-protection/integrated-source-water-protection>

USEPA – Drinking Water Treatability Database: <https://tdb.epa.gov/tdb/home/>

USEPA - Spill Prevention, Control, and Countermeasure Guidance: <https://www.epa.gov/oil-spills-prevention-and-preparedness-regulations/oil-spills-prevention-and-preparedness-guidance>

USEPA - Industrial Stormwater Fact Sheet Series: <https://www.epa.gov/npdes/industrial-stormwater-fact-sheet-series>

Emerging Contaminants

Interstate Technology Regulatory Council - Emerging Contaminants: <https://cec-1.itrcweb.org/>

Interstate Technology Regulatory Council - Per- and Polyfluoroalkyl Substances: <https://pfas-1.itrcweb.org/>

USEPA – Safer Choice Standard: <https://www.epa.gov/saferchoice/products>

USGS - Emerging Contaminants: <https://www.usgs.gov/mission-areas/water-resources/science/emerging-contaminants>

Hazardous Waste

National Groundwater Association - Groundwater Fundamentals: <https://www.ngwa.org/what-is-groundwater/About-groundwater>

USEPA - Hazardous Waste Generators: <https://www.epa.gov/hwgenerators>

Private Well Maintenance

Rural Community Assistance Corporation - Private Well Class: <https://privatewellclass.org/>

USEPA – Private Drinking Water Wells: <https://www.epa.gov/privatewells>

Septic System Maintenance

USEPA - SepticSmart Education Materials: <https://www.epa.gov/septic/septic-smart-education-materials>

K-12 Educational Resources

USEPA - Drinking Water and Groundwater Kids Stuff:
<https://www3.epa.gov/safewater/kids/index.html>

USGS - Water Science School: <https://www.usgs.gov/special-topics/water-science-school>