Appendix F

Public Education and Outreach Plan

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Attachments

Acronyms

BMPs	Best management practices
BSDW	Bureau of Safe Drinking Water
BWPC	Bureau of Water Pollution Control
CSWP	Community Source Water Protection
DDT	Dichlorodiphenyltrichloroethane
EPA	Environmental Protection Agency
GID	General Improvement District
HHW	Household Hazardous Waste
ISWPP	Integrated Source Water Protection Program
NDA	Nevada Department of Agriculture
NDEP	Nevada Division of Environmental Protection (State)
NvRWA	Nevada Rural Water Association
UNR	University of Nevada, Reno
USDA	United States Department of Agriculture
US EPA	US Environmental Protection Agency

1.0 Introduction

The Community Source Water Protection (CSWP) Plan for Public Water Systems in Humboldt County identifies increasing community awareness of drinking water sources and how they can help to protect it as one of the CSWP Plan goals. A variety of education and outreach actions are listed in the CSWP Plan Action Plan (Appendix E) to achieve this goal. This Public Education and Outreach Plan (Education Plan) provides a variety of tools and tactics to implement public education and outreach actions.

Source water protection programs in Nevada are initiated and implemented at local levels and depend on the willingness of a community to support the local program. Therefore, public education and participation is an important strategy to enable community members to be stewards of their local drinking water sources, to promote voluntary protection efforts, and to build public support.

The following are useful contacts for implementing this Education Plan.

Contacts

Organizations	Phone Number	Email Address
Humboldt County		
Regional Planning Department	(775) 623-6392	Betty.lawrence@humboldtcountynv.gov
County Manager	(775) 623-6300	dave.mendiola@humboldtcountynv.gov
Economic Development Officer	(775) 623-6300	Michelle.hammond@humboldtcountynv.gov
Educational and Technical Resources		
Nevada Rural Water Association	(775) 841-4222	info@nvrwa.org
Nevada Outdoor School	(775) 623-5656	http://www.nevadaoutdoorschool.org/ melanie.erquiaga@nevadaoutdoorschool.org
Resource Concepts, Inc.	(775) 883-1600	http://www.rci-nv.com/source_water_protection/ jill@rci-nv.com erin@rci-nv.com alison@rci-nv.com

2.0 Education Plan Target Audiences and Educational Focus

This Education Plan has been prepared to help the target audiences to gain understanding of source water and develop an interest in doing their part to protect source water. The Local Planning Team that developed the CSWP Plan identified residents and businesses in Humboldt County as the primary target audiences for the following specific topics:

- Increase Knowledge of Septic System Operation and Maintenance.
- Increase Knowledge of Well Protection, Operation, Maintenance, Water Quality Testing and Abandonment.
- Increase Knowledge of Proper Chemical and Prescription Drug Use, Storage and Disposal.
- Increase Knowledge of Source Water Protection Concepts, Locations of Source Water Protection Areas and Areas of Interest and Compatible Uses.
- Increase Knowledge of Pollution in Stormwater and How to Minimize or Mitigate Man-Made Contamination.

3.0 Educational Information and Tools for Target Audiences

During the process of preparing the Community Source Water Protection Plan, several educational tools were developed to help facilitate immediate public education and awareness for source water protection. These tools can be used in conjunction with the successful local educational programs, such as the Nevada Outdoor School and Nevada Department of Agriculture's *Ag-in-the-Classroom*, as well as community events and public meetings.

The Watershed and Groundwater Physical Models

The watershed and groundwater physical models used together with the Source Water Protection Area maps are powerful three-dimensional education tools to illustrate how source water can be contaminated from everyday activities. The watershed model shows how contaminants from industry and residential activities can be washed into our drainages. The groundwater model illustrates how contaminants in drainages can infiltrate into the ground and eventually pollute a drinking water well. These models are available for purchase or may be borrowed from the Nevada Division of Environmental Protection. Attachment A includes a brief example for how the models can be used in a classroom.

- The watershed model may be purchased from Enviroscape at https://www.enviroscapes.com/

Maps of Source Water Protection Areas

Source Water Protection Areas can be depicted over a variety of base maps such as topography, aerial photos, or streets to illustrate their location relative to where people live and work.

Web Site Sources

The Web is an excellent source of free educational materials. Although Web sites change frequently, the following sites typically have free downloadable educational documents:

- Humboldt County https://humboldt-county-hub-humboldtnv.hub.arcgis.com/
- Nevada Bureau of Safe Drinking Water Integrated Source Water Protection Program https://ndep.nv.gov/water/source-water-protection/integrated-source-water-protection.
- EPA https://www.epa.gov/ground-water-and-drinking-water
- EPA Drinking Water Mapping Application https://www.epa.gov/sourcewaterprotection/drinking-water-mapping-application-protect-source-waters-dwmaps
- National Groundwater Association www.wellowner.org

Additional web site sources are listed in Attachment B of this Education Plan.

4.0 Useful CSWP Information

The CSWP Plan contains a variety of information that can be used when conducting public education and outreach. This information includes:

- Names and affiliations of the individuals who helped prepare the CSWP Plan (CSWP Plan page i);
- Existing Plans and Studies which support community source water protection (CSWP Plan Section 1.5); and
- The Management Strategies and Best Management Practices that a community intends to use to protect its drinking water sources (see the CSWP Plan Section 3.4).

The Contingency Plan describing what the community would do to replace its drinking water supply if the source became contaminated (see the CSWP Plan Section 3.5):

- Source Water Protection Area maps (CSWP Plan Appendix A); and
- The Action Plan that provides a schedule for implementation of the Public Education Plan (see the CSWP Plan Appendix E).

5.0 Educational Messages and Discussion Points

The presenter(s) should engage their audience to bring the source water protection concepts into a person's own experience. The discussions before, during and after the presentations help to facilitate this. The following questions can help to kick start open communication.

When you turn the tap in your home where does the water come from?

Most people do not know where their water comes from unless they own their own well. If you are on your own well, then the water comes from the shallow aquifer in the immediate vicinity of your well. If you are connected to the public water system then your water comes from within a source water protection area, gets treated and then piped to your home.

What is Source Water Protection?

Source water protection is a way to prevent drinking water from becoming polluted. Much can be done to prevent pollution, such as the informed use of land and proper use and disposal of chemicals.

What are source water protection areas?

In Humboldt County, source water protection areas are specific areas surrounding public water supply wells as illustrated by the source water protection figures. Typically, the source water protection areas include a broad recharge area surrounding the wells.

Why is it important to protect water at the source?

Protecting public drinking water supplies *before* pollution enters our drinking water supplies lessens potential health issues, the high costs associated with water treatment, and source water development. People in Humboldt County can help protect our source water by managing land uses and human-caused sources of contamination to prevent pollution *before* it enters our drinking water supply.

What contaminates the water we drink?

There are numerous pollutants that can contaminate surface and groundwater. Some contaminants are a result of improper disposal of common household and business products such as cleaning products, waste oil, pet waste, fertilizers and pesticides. These and other harmful products, when improperly used, stored, or disposed of may threaten to contaminate our drinking water.

6.0 Other Education and Outreach Tools

The CSWP Local Planning Team should consider themselves Plan Ambassadors. The entire Team should take every opportunity to convey the essence and objectives of the CSWP Plan. The following tactics help increase knowledge and change behavior in accordance with protecting our drinking water sources.

Nevada Outdoor School – The Nevada Outdoor School, based in Winnemucca, has existing programs that help students to develop an understanding of their environment. The Nevada Outdoor School has offered to bring source water protection messages into their program curriculum and has the watershed model and the groundwater model to work with.

Social media (blogs, podcasts, Facebook, YouTube, Twitter, LinkedIn) – These can be a crucial component to communications and is worth consideration. Through websites, blogs, YouTube, etc., audiences have an opportunity to get information anytime. It can also provide an interactive experience. Be aware this kind of media changes rapidly.

Newsletter inserts – Newsletters may include updates on the Community Source Water Protection Plan, testimonials collected, pertinent Nevada Division of Environmental Protection news, information on what other communities are doing to protect their water resources, and real time changes happening at businesses or source water sites. Photos and links to information make newsletter inserts more interesting.

Fact sheet, brochures, handouts, flyers, etc. – The key is to plan ahead as to how you want the audience to use them, how you will get them to the audience, and how you will evaluate their effectiveness. Libraries, community centers, builder associations, economic development authorities and other offices with substantial walk-in traffic are useful locations. However, unless your audience knows the materials are available at these locations, the materials will not be successful. Some examples are included in Attachment D.

Inserts in water bills – The water purveyors may want to insert information in water bills periodically to communicate drinking water source protection measures. Source water protection is an excellent message for Public Water Systems to incorporate in the annual "Consumer Confidence Report" required for many community water systems.

Press releases – Developing relationships with local media and pitching stories and event ideas to them is an effective way to reach several audiences including business leaders and residents. A list of media outlets for the Humboldt County area and a press release template are attached to this Education Plan. Contact persons at these outlets can change quickly so it is important to confirm this information before moving forward.

Website inserts and links – The Local Planning Team may choose an appropriate website to serve as the repository for education materials. The website could provide information to businesses regarding how they can become source water protectors and share stories of how they are helping protect their community's source water. If a website is created, then all tactics should include a website address. Photos and links are very helpful on a website.

Public meetings/conferences/community events – Several are identified in the Action Plan. Publicize the meeting or event and use other tactics to support the education at the meeting, conference, or event.

Posters – Purveyors may want to create appropriate signage as a reminder of best management practices related to protecting your community's drinking water source.

Employee training on materials handling practices, emergency spill situations – Purveyors should have these items on hand and, if asked, they may consider including information on the importance of protecting your community's source water.

Site signage – Signage at businesses that use best management practices to lessen their impact on source water indicating their dedication to their community's most important resource, drinking water. For example:

> [INSERT BUSINESS NAME HERE] is dedicated to protection of drinking water sources in Humboldt County through the use and support of best management practices.

Guest columns/editorials – Providing guest columns and editorial pieces to local newspapers enables the CSWP Team the opportunity to position the Team as source water protection experts. Guest columns from respected and well-known community members also offer a medium to encourage, educate, and motivate readers to protect their source water. Use the attached Nevada media list to assist you in pitching a guest column or editorial.

Case studies – Case studies give audiences an understanding of the issue and how it is being approached in the community. The studies should be brief with general information as to who, what, where, when, and why and include photos where appropriate.

7.0 Education and Outreach Success Evaluation

Evaluating effectiveness is the foundation for a successful plan implementation. Effective evaluation is key in determining how effective your messages and tactics are and what changes can be made to improve the program. Based on the tactics chosen and available resources, at least one form of measurement will work for each tactic. Establish the best form of evaluation as soon as you have decided on which tactics to execute. When conducting outreach, one should be thinking about the difference being made and how best to measure the impact. Quantitative and qualitative measures should be considered.

Quantitative measurements – These measure the amount of information, not necessarily the quality of information.

- Quantity of presentations delivered and people in attendance;
- Quantity of distributed materials; and
- Quantity of inquiries (phone calls, e-mail, e-newsletter, website testimonials and visits).

Qualitative measurements – These measure the quality of the information by giving an opportunity for feedback. In this way, you can determine how the messages you are communicating are being received. This can be as simple as asking each and every person who has come into contact with your messages a few simple questions:

- Survey attendees of presentations;
- Email surveys to those who receive email communications; and/or
- Online survey of website visitors.

8.0 Education Outreach Tips

Education outreach should be personalized for your individual needs. Depending on the tactics selected, you may need to create additional communication pieces. A few tips to remember when creating any communication piece:

- Simple and consistent is best;
- Use words that the general public will understand;
- Allow whitespace – do not fill every space;
- You do not need to say it all – the more you say the less effective the entire piece will become; and
- Be consistent in the look and message of every piece and limit it to no more than three messages.

Finally, always include a call to action such as:

- "To learn more, log onto our website: www.xxxx.org."
- "To register for a presentation, contact your water purveyor."
- "Take oil to one of the following disposal locations…"

A great idea without the resources to execute it will not be effective, nor will brochures that simply sit on the counter at the community library when they need to be in people's hands. Therefore, when education for an audience is desired, these are a few things to consider:

- What is the best way to reach my audience?
- What is my budget?
- How much time do I have?
- How will I follow up to see if it was effective? And when?

Public Education and Outreach

Attachment A

Using the Models in Outreach: An Example

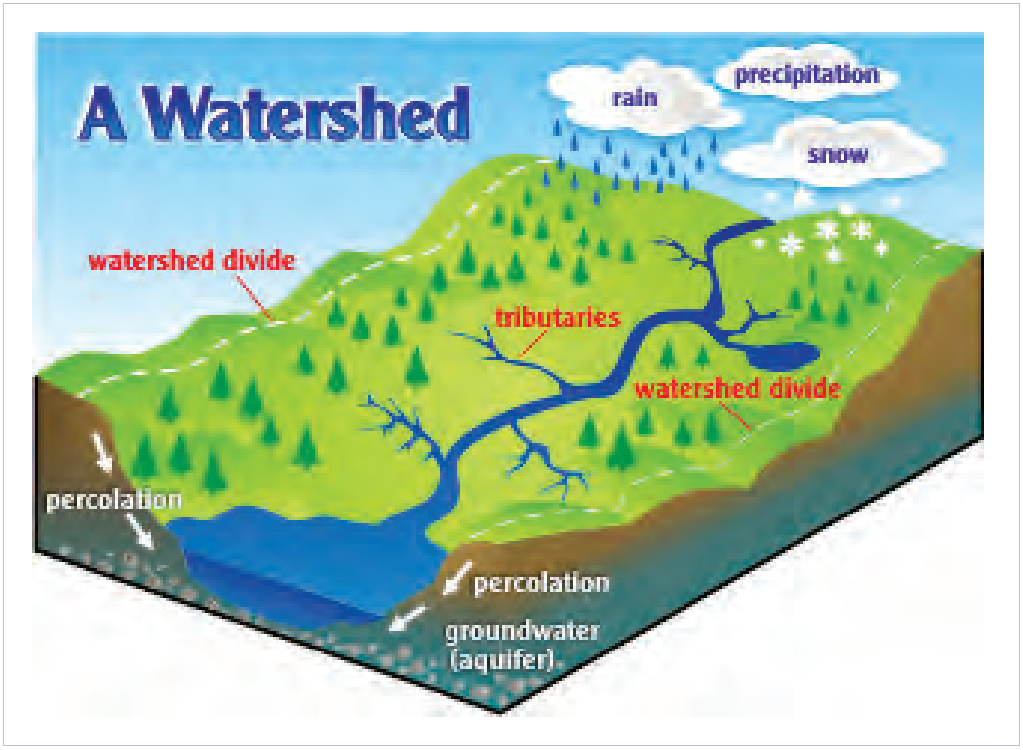
Outreach using the watershed and groundwater models is appropriate for community events or schools. Presentations can be brief or extend up to an hour.

When you turn on the tap in your home, where does the water come from?

Depending on the answers the discussion evolves. A discussion can include what the sewer does, rainfall quantities, the Humboldt River or nearby creek as appropriate for the area.

What is a watershed?

Watershed is a difficult concept and a drawing can facilitate the discussion. A watershed is the area of land where all of the water that is under it or drains off of it goes into the same place. The following figure is an example.



Demonstration of the Watershed Model

- ✓ Invite the participants to come close to see the watershed model and ask if they know:

  What is a contaminant? Discuss various forms such as oil and grease, factory chemicals, fertilizer, etc. and sprinkle it around.

  How much rainfall does the community receive each year? Discuss and then rain on the watershed, it flows down, then discuss infiltration, pull the plug and move to the groundwater model.

- ✓ Discuss the importance of individual actions to protect source water and drinking water.

Demonstration of the Groundwater Model

- ✓ Put green and red food coloring into the lake and pond areas 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?***

Share the SWPA Maps of the Community

- ✓ Discuss the 2, 5, 10, and 25-year capture zones, the source water protection areas, and what they mean.
- ✓ Discuss different common chemicals or products that are more or less harmful to the environment. Discuss the importance of thinking about the chemicals we use and how we use them.
- ✓ Discuss proper disposal methods, the importance of keeping contaminants out of the irrigation ditches and the Household Hazardous Waste program available to the community.
- ✓ Reiterate that each person makes a difference to source water protection by his or her actions and choices they make every day.

Public Education and Outreach

Attachment B

Online Resources

For more information on your drinking water and source water protection go to:

What is Source Water Protection?
https://www.youtube.com/watch?v=xtsvmrf9p1s

What is Groundwater, Source Water Protection and Landowners?
https://www.youtube.com/watch?v=oNWAerr_xEE

Nevada Source Water Protection – General Information
https://ndep.nv.gov/water/source-water-protection

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

Nevada Source Water Assessment Program
https://ndep.nv.gov/water/source-water-protection/source-water-assessment

EPA Ground Water and Drinking Water
http://water.epa.gov/drink/local/nv.cfm

Nevada Drinking Water
https://ndep.nv.gov/water/drinking-water

National Menu of Best Management Practices for Stormwater
https://www.epa.gov/npdes/national-menu-best-management-practices-bmps-stormwater

This EPA link is excellent regarding water quality and household wells
https://www.epa.gov/sites/default/files/2015-10/documents/2003_06_03_privatewells_pdfs_household_wells.pdf

The Nevada State Laboratory has information regarding water quality analyses. Their Web site is https://med.unr.edu/nsphl

Links may change but you can search for key words above that describe each link!

Public Education and Outreach

Attachment C

Terms Defined

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

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

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

Groundwater: water found beneath the earth's surface.

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

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.

Bureau of Safe Drinking Water: 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." Safe drinking water is vital to the welfare, economy, and health of Nevada. The moment a person drinks water from their tap represents an intimate connection between public trust and the government's duty to protect public health. Through the NDEP, BSDW helps communities protect their drinking water.

Bureau of Water Pollution Control: the mission of State of Nevada Bureau of Water Pollution Control is to protect the waters of the State from the discharge of pollutants. This is accomplished by issuing discharge permits, which define the quality of the discharge necessary to protect the quality of the waters of the State, enforcing the state's water pollution control laws and regulations, and by providing technical and financial assistance to dischargers. Through the NDEP, BWPC helps communities protect their drinking water.

Integrated Source Water Protection Program: 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 BSDW.

Public Education and Outreach

Attachment D

Examples of Educational Information

Protecting Our Drinking Water

Much of the Nevada countryside is in agricultural operations and plays a huge role in our state's production of food. Conversely, agriculture may also impact the drinking water sources throughout the state. Farmers and ranchers have a unique challenge in balancing efficient operations with environmental stewardship. This brochure is designed to provide information on various Best Management Practices (BMPs) that can help reduce nutrients found in manure and sediment from row crops.

All agricultural producers are encouraged to seek assistance from their County Conservation District and the Natural Resources Conservation Service for the installation and implementation of these practices.

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.

Some precipitation, instead of traveling over the land, will percolate into the soil and reach the *groundwater*. Similarly, the groundwater may pick up these contaminants, which are then carried by the groundwater into one of the rivers or lakes in the watershed.

HOMEOWNER GUIDE

Agriculture and Your Drinking Water

Source Water Protection Program

USDA

NEVADA RURAL WATER ASSOCIATION

363 Fairview Drive
Carson City, NV 89701
(775) 841-4222
NvRWA.org

1

How Does Drinking Water 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. Sometimes pollutants like manure and sediment from stormwater runoff find their way into streams and creeks. 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.

Examples of Agriculture Practices That Reduce Pollution

No-Till Planting and **Contour Strips** reduce loss of sediment through stormwater runoff.

Streambank Fencing prevents animals from depositing manure into streams. The fence also avoids destruction of the streambanks that add sediment to the water.

Conservation and Nutrient Plans help farmers with sustainable operations while complying with Pennsylvania Chapter 102 and Act 38 regulations.

Grazing Management helps maintain plant life on pasture lands, reducing soil loss during rain events or snow melts.

Buffer Plantings along streams and creeks help filter pollutants in stormwater runoff from getting into the water.

Creek Crossings minimize animal access to streams and reduces manure and sediment contamination.

2

Safe Pesticide Waste Disposal
Frequently Asked Questions

Nevada Department of Agriculture

What should I do with unused or expired pesticides?
Unusable, expired or unwanted pesticides are referred to as waste pesticides. Many pesticides are banned or no longer used, including DDT, chlorpyrifos, and diazinon, and they can all be disposed of safely through the Nevada Department of Agriculture (NDA) Environmental Services program.

What products can be disposed of?
Acceptable products include:
- insecticides
- fungicides
- herbicides
- rodent baits
- other pesticides

Unfortunately, we cannot accept any of the following:
- batteries
- motor oil
- antifreeze
- paint
- degreasers
- pesticide rinsate

Please call **1-800-597-5865** for all other disposal inquiries. Waste pestcides can be also disposed of with Nevada H2O Environmental: **775-351-2237**.

Is there a fee to dispose of pesticides?
Pesticide waste disposal is provided to Nevadans at no cost. Waste pesticide disposal is paid for through manufacturer fees. All pesticide applicators, including farmers, ranchers, licensed pest control operators, businesses and homeowners can safely dispose of pesticides through the NDA for free.

Why can't I throw out pesticides?
Improper disposal of waste pesticides may result in surface or groundwater pollution. The NDA's pesticide waste disposal program gives pesticide users the opportunity to properly discard unwanted pesticide products. This is a safe way to protect the environment from pesticide pollution and contamination. **Never pour pesticides down any drain.**

Old pesticide containers will deteriorate over time. Leaking containers can result in pesticide exposure to people, pets, wildlife and the environment. Avoid costly clean ups or pesticide exposure by removing and disposing of unwanted pesticide products.

How do I dispose of waste pesticides?
First, inventory the pesticides you wish to dispose of. List the name of the product (use "unknown" if you are unsure). Be sure to include the approximate amount and state of the product. For example:

Product	Amount	State
Chlordane	2 gallons	liquid
Unknown	10 lbs	dust

Please do not drop off pesticides at our office. Contact the NDA for an appointment. Always wear personal protective equipment (as instructed by the label) when handling pesticides. Of you have any unopened product that is still legal to use, the best option to dispose of it is to use it in accordance with the label instructions. This is also true of pesticide rinsate, which we do not collect.

Contact

Northern Nevada

Derek Entz, environmental scientist II

775-353-3717

dentz@agri.nv.gov

Southern Nevada

Ray Saliga, agriculturist III

702-668-4561

rsaliga@agri.nv.gov

Nevada Department of Agriculture
405 S. 21st Street • Sparks, NV 89431
2300 E. Saint Louis Ave • Las Vegas, NV 89104

agri.nv.gov/ES

Nevada Division of Environmental Protection
Bureau of Water Pollution Control

Abandoning Unused Water Wells FACT SHEET

If you don't use your well, why should you plug it?

Unplugged abandoned wells can come back to haunt you and your water supply. Every year, many wells are abandoned when they are replaced with new wells or when homes are connected to community water systems. When an abandoned well is improperly plugged, or not plugged at all, it can be a hazard to safety and health.

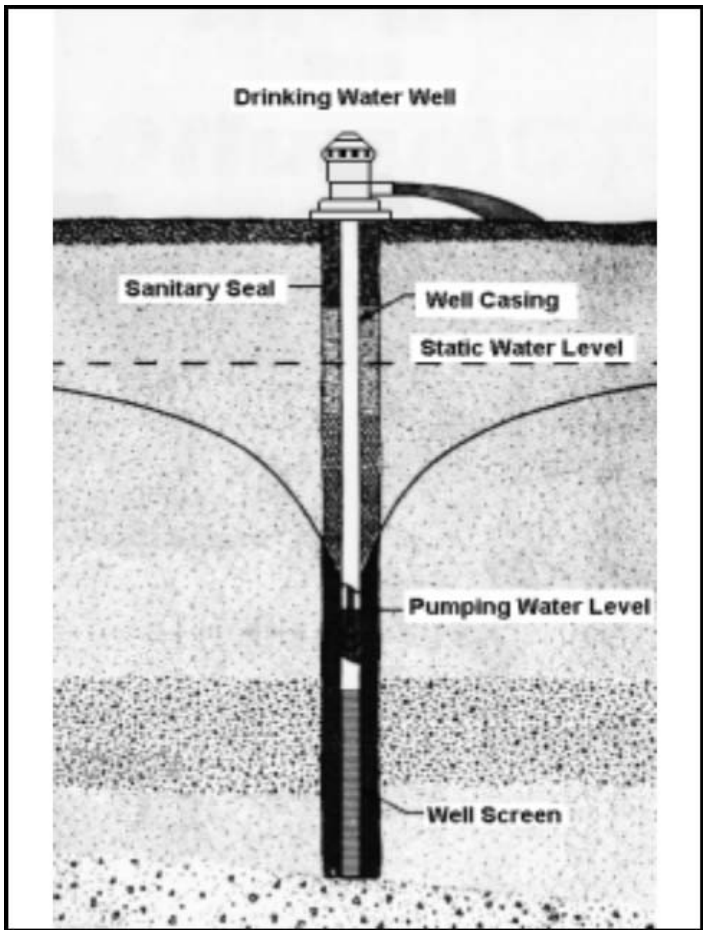
Unplugged abandoned wells may provide a direct path from the land surface to ground water. When they are not properly plugged, pesticides, fertilizers, and other contaminants have an easy path straight to your ground water. If the well is open, you also run the risk of children, animals and others falling into it. You may be held liable for their injuries. Also, you may be held liable for any illegal dumping done without your knowledge, or for mischievous acts and pranks committed to your well.

Another reason for properly abandoning your well is that the State of Nevada, Division of Water Resources, has adopted regulations that require the plugging of water wells. The regulations require that water wells be plugged by a licensed well driller. The well casing has to be removed, perforated or ripped, depending on the geological conditions of the site. The plugging has to be done by filling the drill hole with neat cement or a bentonite product. After the well has been properly plugged, the driller then makes a report in writing to the Division of Water Resources. It is important to point out that property owners are responsible for proper well abandonment.

What if there is an abandoned well on my property and I don't know about it?

Abandoned wells are not always in clear sight. To find out if there is one on your property, try contacting the following sources.

- Former property owners or neighbors, who may remember well locations.
- Well drillers, who may be able to say where they drilled a well no longer in use.
- Old photos, which may show windmills, houses, barns, or other buildings where wells might be found.
- Fire insurance plan drawings, which might contain records of old wells.
- Government agencies or surveys, such as the State Division of Water Resources, Conservation Districts, Nevada Bureau of Mines and Geology, U.S. Geological Survey, and Irrigation Districts.



Updated June 2007

Can I get financial assistance for plugging unused wells on my property?

There are some sources of financial assistance available in different forms - grants, loans or a combination of both.

-The State Revolving Fund provides loans (and other forms of financial assistance) with interest at or below the market rate, to assist municipalities or other public entities in projects to control water pollution. The entity also has to write a description of the project, including design, construction drawings and specifications. The Division of Environmental Protection, Office of Financial Assistance, reviews the document and, upon approval, executes the contract. For move information, please contact the Office of Financial Assistance, (775) 687-9488.

-The State Revolving Fund also offers non-match grants for the development and implementation of local wellhead protection programs. The Division of Environmental Protection, Bureau of Water Pollution Control, is the lead agency for the Nevada Wellhead Protection Program. For more information, please contact the Bureau of Water Pollution Control, (775) 687-9426.

-Section 319 of the Clean Water Act 1987 Amendments provides for funds, which require a 50% local match, for projects that improve water quality. Under this provision, community entities (as opposed to individuals), apply to the Nevada Division of Environmental Protection (NDEP), Bureau of Water Quality Planning, with a written proposal describing their project. The community entities can be, for example, GIDs (General Improvement Districts) or Home Owner Associations. The Bureau then reviews all the proposals received, prioritizes them, and awards the funds appropriately. For more information, please contact the Bureau of Water Quality Planning, (775) 687-9550.

-The Nevada State Office for Rural Economic and Community Development, U.S. Department of Agriculture has loans and grants available to eligible individuals (as opposed to entities) to assist in sealing unused wells. The only areas in Nevada where these programs are not available are Reno, Sparks, Las Vegas, Carson City, and South Lake Tahoe. Also, there are restrictions in terms of household income, but these vary according to size of family and county of residence. For further information, please inquire as follows:

For the counties of Churchill, Douglas, Lyon, Mineral, Storey, and Washoe, please contact:

William Brewer,
USDA Rural Development
1390 S. Curry Street
Carson City, NV 89703
(775) 887-1222, ext. 13

For the counties of Clark, Esmeralda, Lincoln, Nye, please contact:

Kevin McAllister
USDA Rural Development, Field Office
5820 S. Pecos Road, Building A, Suite 400
Las Vegas, NV 89120
(702) 262-9047, ext. 112

For the counties of Elko, Eureka, Humboldt, Lander, Pershing, and White Pine, please contact:

Thomas Stephens
USDA Rural Development, Field Office
555 W. Silver Street, Suite 101
Elko, NV 89801
(775) 738-8468, ext. 110

How can I get more Information?

If you would like to obtain more information about Properly Abandoning Wells, please contact the Division of Water Resources, at (775) 687-3861.

If you are interested in finding out more about protecting your ground water, you can contact the Bureau of Water Pollution Control, at (775) 687-9426.

If you have any other water quality questions, you can contact the Bureau of Water Quality Planning, at (775) 687-9448.

NDEP acknowledges contributions from the book 50 Ways Farmers Can Protect Their Groundwater written by Michael C. Hirschi, F. William Simmons, Doug Peterson and Ed Giles and published by the University of Illinois and the UI Cooperative Extension Service.

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 contamination from failing septic systems, leaky storage tanks, and improper/illegal dumping. The groundwater ultimately flows into one of the rivers or lakes in the watershed; therefore, any persistent chemical in the groundwater has the potential to pollute our surface water.

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.

https://www.humboldtcountynv.gov/

HOMEOWNER GUIDE

Proper Disposal of Household Hazardous Waste

Nevada's Integrated Source Water Protection Program

For more information:

https://ndep.nv.gov/water/source-water-protection/integrated-source-water-protection

1

Remember, it's not just toxic to you!

Did you know that many household products are dangerous to our children, pets, and the environment? Household cleaners, lawn and 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.

USDA

NEVADA RURAL WATER ASSOCIATION

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.

2

HOW CAN YOU PROPERLY DISPOSE OF HOUSEHOLD HAZARDOUS WASTE IN HUMBOLDT COUNTY?

DID YOU KNOW...

Paints, oil, grease, batteries, unused medications, and chemicals can pollute your drinking water. Properly dispose of or recycle, help to protect drinking water and the environment for ourselves and future generations.

Where should you take household hazardous waste?

The Humboldt County Regional Landfill is open from 8:00 am to 6:00 pm and will receive small quantities of Household Hazardous Waste.
Call in advance for your disposal needs.
Humboldt County Regional Landfill
4025 Winnemucca Mountain Road, Winnemucca, Nevada 89445 (775) 304-0692

Don't pour grease, fats, or harmful chemicals like paints and solvents down your sink. They can harm your drinking water.

What to do with used motor oil?

Used motor oil can be brought to several automotive facilities in Fallon. There must be no other contaminants in the motor oil (i.e. water or gas).

Only small quantities are accepted so don't save up your used motor oil for an extended period of time - facilities have limited container space.

O'Reilly Auto Parts
(775) 625-3334
942 W Winnemucca Blvd.
Winnemucca, NV 89445

Walmart Tire and Lube Express
(775) 625-3777
3010 Potato Rd.
Winnemucca, NV 89445

Note: This information was updated in 2023

Where should I take unwanted or expired medications?

Never put unused medications down the drain or flush them down the toilet. Many of them cause ecological harm and current sewage treatment systems are not effective in removing drugs from water. Take unwanted medications to (no liquids aerosols, or needles):

Winnemucca Police
500 E. Winnemucca Blvd.
Winnemucca, NV 89445
(775) 623-6396

For more information:

How do you Properly Dispose of Paint?

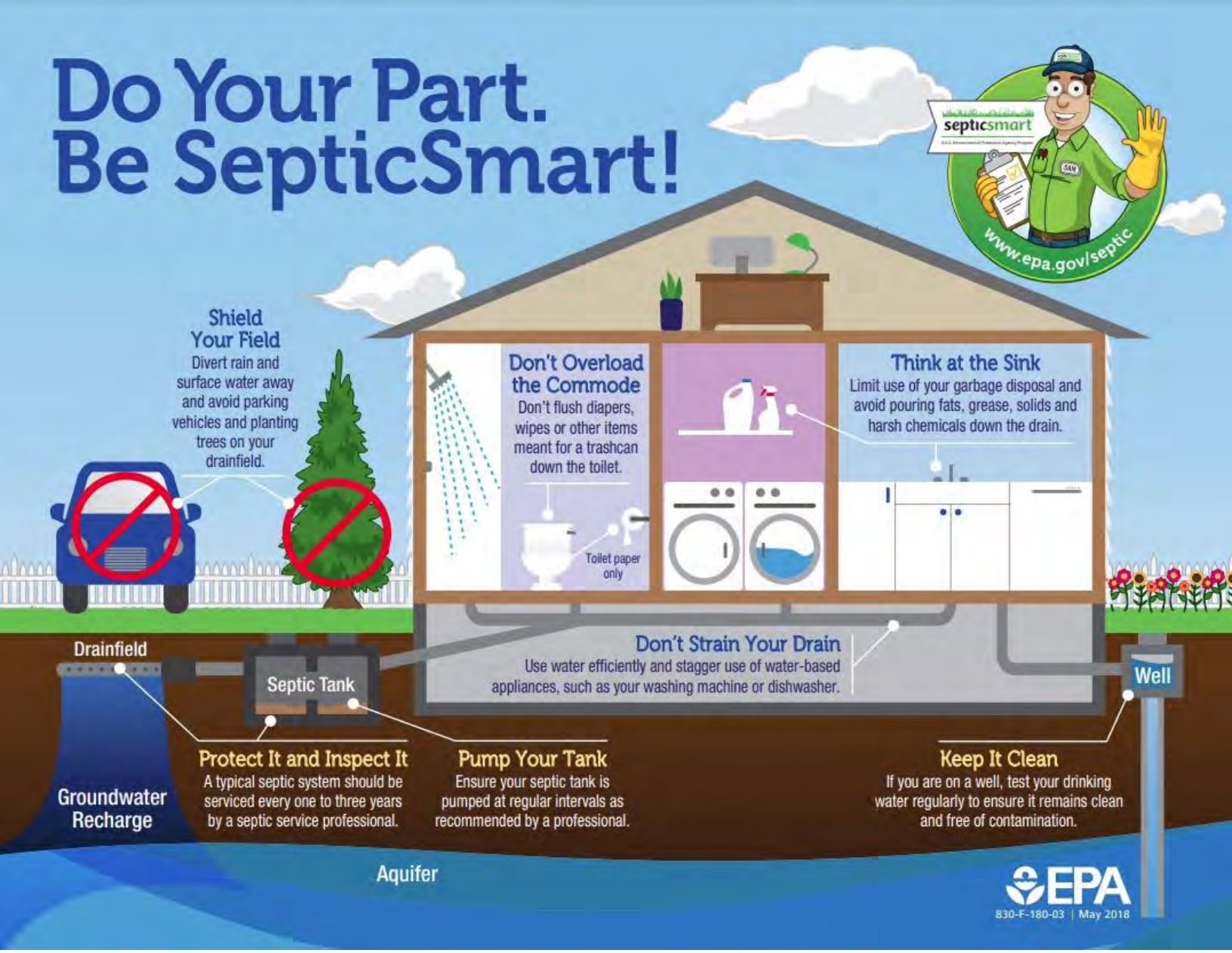
Safer Alternatives to Hazardous Household Products

What should I do with pesticides, herbicides, insecticides, etc.?

Nevada Department of Agriculture has a free disposal service for unused pesticides. Materials may be dropped off at their Reno facility by appointment. Call (775) 353-3715 for details.

What should I do with old latex paint?

The bottom line for latex paint disposal is to include it with your garbage, but it has to be solid first (and leave the lid off the can so the garbage hauler/attendant can see that it is solid). Paint hardeners are available at the Walmart store in Fallon.


Do Your Part.
Be SepticSmart!
septicsmart
www.epa.gov/septic
Shield Your Field
Divert rain and surface water away and avoid parking vehicles and planting trees on your drainfield.
Don't Overload the Commode
Don't flush diapers, wipes or other items meant for a trashcan down the toilet.
Toilet paper only
Think at the Sink
Limit use of your garbage disposal and avoid pouring fats, grease, solids and harsh chemicals down the drain.
Don't Strain Your Drain
Use water efficiently and stagger use of water-based appliances, such as your washing machine or dishwasher.
Drainfield
Septic Tank
Well
Protect It and Inspect It
A typical septic system should be serviced every one to three years by a septic service professional.
Pump Your Tank
Ensure your septic tank is pumped at regular intervals as recommended by a professional.
Keep It Clean
If you are on a well, test your drinking water regularly to ensure it remains clean and free of contamination.
Groundwater Recharge
Aquifer
EPA
830-F-180-03 | May 2018

UNIVERSITY OF NEVADA •Reno

COOPERATIVE EXTENSION

Bringing the University to You

Fact Sheet 99-26 (formerly 92-27)

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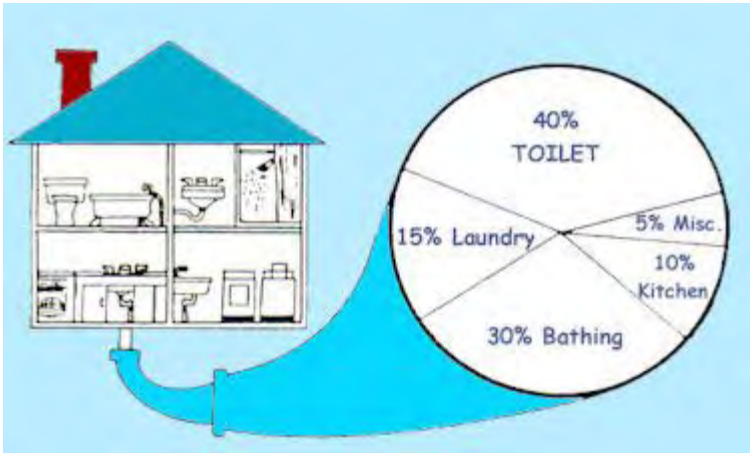
SEPTIC SYSTEMS

Because they are out of sight, they are often out of mind, but septic systems cannot be neglected without problems for the homeowner.

While public sewer lines carry away household waste in urban areas, rural properties rely on self-contained sewage treatment systems installed below ground near the property they serve. Such systems are called septic tank-soil absorption systems, otherwise known as “septic systems.”

Proper disposal of domestic waterborne wastes includes physical disposal of the sewage into the environment without adverse health, odor, aesthetic or nutrient (fertilization) effects. This is provided by a properly managed septic system. Appropriate handling of waste water is essential in maintaining health standards of water quality and recharging ground water. To avoid contamination of ground water supplies, septic systems should be installed at least 150 feet from any drinking water well.



Septic systems are called upon to receive and process household wastewater from toilets, showers, washing machines, sinks and garbage disposal units (see Figure 1). Their efficiency is dependent upon their design, proper installation, and maintenance program. Failure in any one of these areas can lead to improper operation, which can create a health hazard and a potential financial burden.

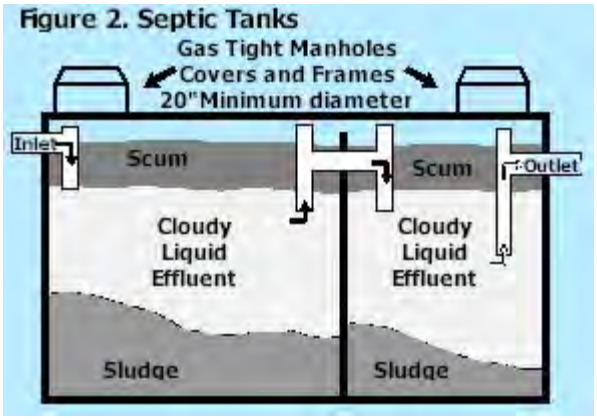
HOW A SEPTIC SYSTEM WORKS

All septic systems function in the same general manner, piping household wastewater to a holding tank where solids are removed. Through bacterial action, some of the solids are digested and converted to liquid for discharge into a “soil absorption area.” The remaining solids are stored for future disposal.

The septic tank was patented in London, England around 1900 and is described in Webster’s Dictionary as “a tank in which waste matter is decomposed through bacterial action.” The modern septic tank is a watertight box usually made of precast concrete, concrete blocks, or reinforced fiberglass. When household waste material enters the box, several thing occur:

1. Organic solid material floats to the surface and forms a layer that is commonly called “scum.” Bacteria in the septic tank set about to biologically convert this material into liquid.
2. Inorganic or inert solid materials that cannot be biologically converted, and the by-products of bacterial digestion, sink to the bottom of the tank and form a layer commonly called “sludge.”
3. A cloudy liquid lies between the two layers and is the only ingredient that should overflow into the soil absorption area.

A properly functioning tank is illustrated in Figure 2.



The overflow of solid material into the soil absorption area should be avoided because it will clog soil pores in the absorption area and result in system failure. Two factors contribute to solid material overflow: bacterial deficiency and failure to have sludge accumulations removed periodically.

Bacteria must be present in the septic tank to digest the organic solids. Normal household waste provides enough bacteria to digest the solids UNLESS the bacteria is killed off. Bacteria are very sensitive to environmental changes and may be destroyed by such common home-care products as:

- detergents
- cleaning compounds
- disinfectants
- polishes
- toilet
- sink and tub cleaners
- bleach
- caustic drain openers
- acids
- cleaners

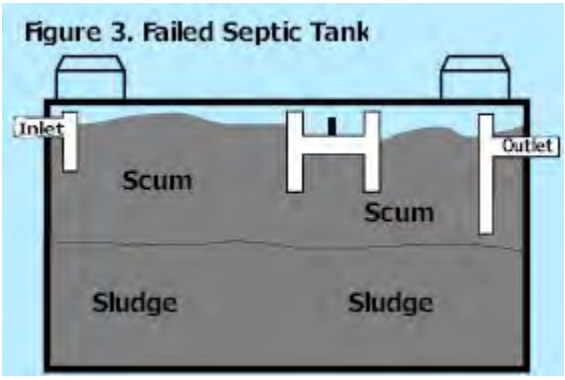
Check the labels on these and other products used in the home. Labels carrying any of the following warnings indicate the presence of ingredients that may kill bacteria.

“Harmful if swallowed”
“Avoid contact with the skin”
“Do not get in open cuts or sores”
“If product comes in contact with eyes, call a physician immediately”

Look for products labeled “safe for use in septic systems.”

When bacteria are not present to digest and liquefy the scum at the top of the septic tank, the scum will accumulate until it overflows, clogging the soil absorption area.

The sludge at the bottom of the septic tank is inorganic and inert material that is not biodegradable and will not decompose. If not removed on a periodic basis, it will accumulate and overflow, also clogging the absorption area. Figure 3 illustrates a failed septic system.

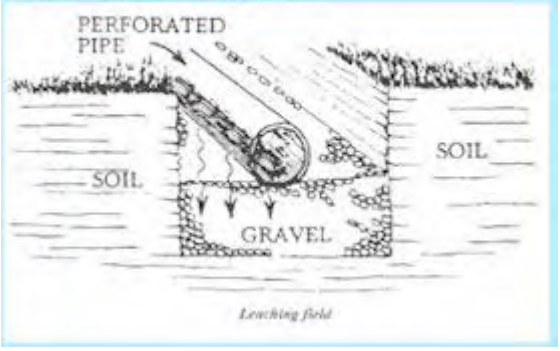


SOIL ABSORPTION AREAS

There are three main types of absorption areas — leaching fields, filter beds, and drainage pits sometimes called drywells or cesspools.

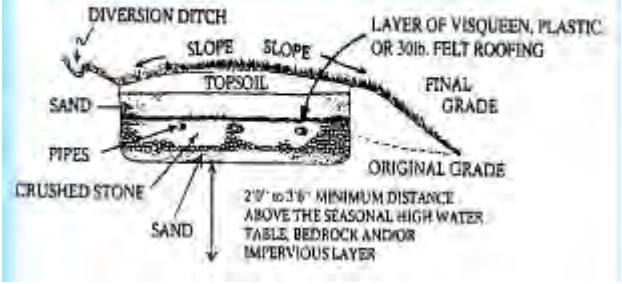
Leaching fields generally consist of a network of perforated pipes laid in a gravel-lined trench. If solids are permitted to enter the pipes, they can clog the perforations, causing draining to slow and eventually stop. See Figure 4.

Figure 4. Leaching Field



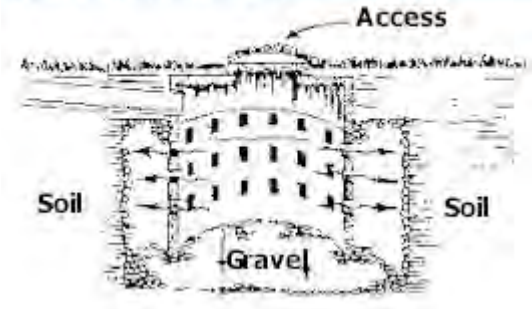
Filter beds shown in Figure 5 work on the same principle as leaching fields, with a perforated pipe running through layers of sand and crushed stone. Filter beds are wider than leaching fields and can be constructed either above or below ground. Because of their smaller size, filter beds are more suitable to high water table soils, or smaller properties that lack the space required for the long trenches of a leaching field. Again, solids must be kept out of the filter lines to prevent clogging.

Figure 5. Filter Bed



Drainage pits shown in Figure 6 are constructed of either precast or concrete block cylinders. They have closed tops, open bottoms, and holes in the sidewalls. Some older septic systems consist of only a drainage pit or a cesspool. Their use is no longer permitted.

Figure 6. Drainage Pit



SEPTIC SYSTEM MAINTENANCE

Septic systems require two things: proper bacterial action and periodic pumping.

To ensure that proper bacterial action takes place, the system should receive normal household waste that contains the organisms necessary to initiate and promote anaerobic digestion. All bacteria-killing products should be disposed of properly according to label directions and should not be disposed of in the household septic system.

The frequency of pumping the septic tank will depend on the size of the tank, the number of people occupying the home, the frequency of garbage disposal use, and the condition of the system. Since there is no tank additive that will dissolve or eliminate the accumulation of sludge, IT MUST BE PUMPED OUT. Failure to pump periodically can cause solids to overflow into the absorption area. This can clog the system and may force replacement of the absorption area at considerable expense and inconvenience. Typical replacement costs are likely to exceed $4,000.

Generally, a properly designed tank of 1,000 gallons capacity and used by a family of 4 people should be pumped about every 3 years. More frequent pumping may be necessary in larger families or if a garbage disposal is used or excessive amounts of household grease enter the system.

Pumping of septic tanks should be performed by professionals who have the necessary equipment to do the job properly. They can be found in the Yellow Pages of your telephone directory under "Septic."

COMMONLY ASKED QUESTIONS

Q: **What causes the thick crust in my septic tank?**
A: This is organic material that has congealed into a solid mass. The condition is dangerous and indicates a bacterial deficiency. Have the tank pumped to avoid future problems.

Q: **Will acid help my septic system?**
A: Acids and chemicals work only temporarily. They are extremely dangerous to use and are harmful to the environment. The Environmental Protection Agency has banned the use of these hazardous materials in many places.

Q: **Does it help to add yeast, baking soda or inoculants?**
A: Yeast merely provides a fermentation environment. It does not provide bacteria. Baking soda raises the pH in the tank and also provides no bacteria. A high pH can harm the septic process. The benefits of inoculants are inconclusive.

Q: My system recently backed up for the first time in years. What do I do now?
A: A backup is the first sign of septic system failure. It will occur again unless maintenance is begun. Contact a septic service provider immediately.

WARNING SIGNS OF SEPTIC SYSTEM PROBLEMS

Sluggish drains in the home
Plumbing backups
Gurgling sound in pipes or drains
Outdoor odors
Mushy ground or greener grass around septic system

OTHER CAUSES OF SEPTIC FAILURE

Placement in poor drainage area
Failure to install according to septic codes
Overloading. Use water sparingly. Do only full loads of wash at off-peak times, if possible, and try to limit the number of loads daily.
Pouring kitchen grease into drains.
Flushing cigarette butts, sanitary napkins or other inorganic materials down the toilet.
Extensive use of garbage disposals. Ground up foods are hard on septic systems because they are not digested first by the human body.
Use of salts and chemicals from water softeners and washing machines can damage septic tanks. Channel washing machine water and waste from water softeners into a separate disposal area such as a dry well, if permitted.
Tree roots clogging pipes. Contact a septic contractor for repairs.

Source: Cape Cod Biochemical Co., Pocasset, MA