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Water Quality
Bulletin #1
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DRINKING WATER SUPPLY

SITE ASSESSMENT

WASTE WATER TREATMENT

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

HOUSEHOLD HAZARDOUS WASTE

PETROLEUM PRODUCT STORAGE

LIVESTOCK OPERATIONS

PESTICIDE & FERTILIZER STORAGE & HANDLING

Virgin Islands Resource Conservation & Development Council, Inc.
Gallows Bay, St. Croix
778-9838

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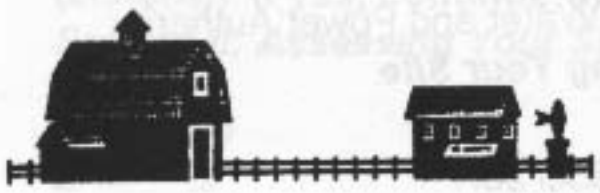

HOME & FARM WATER QUALITY ASSESSMENT

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

About 50-60 percent of Virgin Islands' residents use ground water or a rain water collection system (cistern) to supply their drinking water needs. These systems should be designed to provide clean, safe water. If water supply equipment or storage facilities are not built and/ or maintained properly, they can allow bacteria, fertilizer, pesticides, animal manure, petroleum products, or other pollutants to contaminate drinking water. These contaminants can put your family's health at risk.

Pollution is a serious threat to scarce fresh water supplies. You can help protect your drinking water by learning to recognize potential sources of pollution and by working to reduce or eliminate them.

WHAT CAN YOU DO?

This Assessment has been designed to make you aware of conditions or practices on your property that increase the risk of contamination to your drinking water. It is divided into eight sections so you can easily identify particular situations on your property that may be putting your drinking water at risk.

If you answer ***Yes*** or ***do not know*** the answer to any of the questions in a specific section of this Assessment, you will be directed to a factsheet in this bulletin that will provide more information on that topic. These factsheets will help you to develop an Action Plan to establish practices that reduce contamination risks to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

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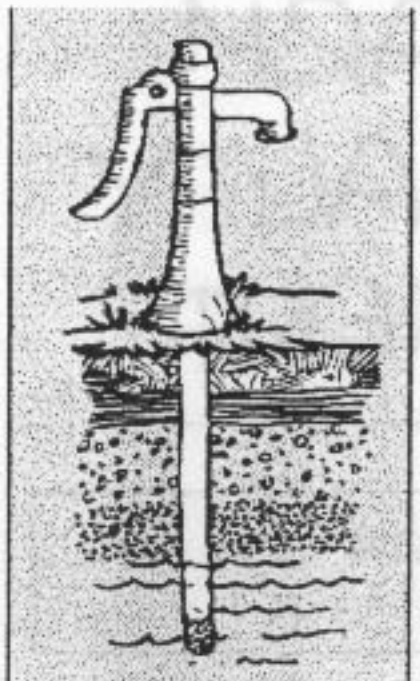


I. Assessing the Condition and Location of Your Water Supply System

If your drinking water comes from the V.I. Water and Power Authority (WAPA), continue to ***Section II. Assessing Your Site***.

A. Well Water Supply System.

Is your water supply from a domestic well? If yes, continue with the questions below. If no, go on to *B. Rainwater Collection Systems.*

YES	NO		
☐	☐	1.	Do you have a well less than 50 feet deep?
☐	☐	2.	Do you have a dug well or driven well, rather than a drilled well?
☐	☐	3.	Was your well built more than 50 years ago?
☐	☐	4.	Has it been longer than three years since you had your well water tested or did your water test positive for nitrate and/or bacteria the last time it was tested?
☐	☐	5.	Does your well casing (well pipe) extend less than 18 inches above the ground level?
☐	☐	6.	Is there a hole or depression around your well casing?
☐	☐	7.	Can you see any cracks or holes in your well casing?
☐	☐	8.	Is your well downhill from any potential contamination sources (septic system; pesticide, fertilizer, manure, or petroleum product storage area; or other pollution sources)?
☐	☐	9.	Is your well located closer to potential pollution sources than Virgin Islands code allows?
☐	☐	10.	Are there abandoned wells on your property that have not been properly plugged?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing the Condition and Location of Your Drinking Water Well***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

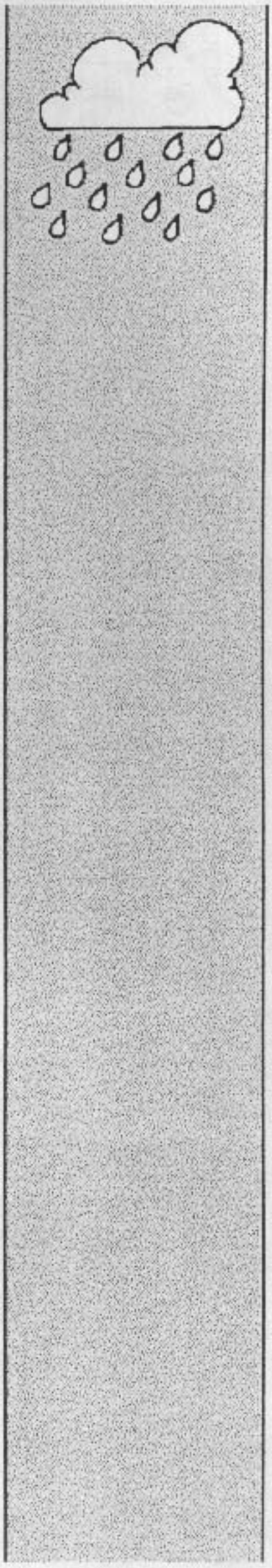
R. Rain Water Collection System (Cistern)

Is your drinking water supply from a rain water collection system (cistern)? If yes, continue with questions below. If no, continue to *Section II. Assessing Your Site*.

YES	NO		
☐	☐	1.	Has it been over three (3) years since your cistern was emptied and cleaned?
☐	☐	2.	Has it been over one month since you treated your cistern water with chlorine?
☐	☐	3.	Has it been longer than one month since you cleaned debris from your roof and/or collection system (gutters, pipes, cistern)?
☐	☐	4.	Is your roof made of or coated with toxic materials (i.e., asbestos, lead paint, zinc, etc.)?
☐	☐	5.	Are there places on your roof, collection area, or in your gutter system where water stands instead of flowing into your cistern?
☐	☐	6.	Can animals or debris enter through the screen(s) on your rainwater collection system?
☐	☐	7.	Has it been longer than two (2) years since you inspected your cistern for cracks or leaks?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing the Condition of Your Rain Water Collection System (Cistern)***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

(Go to Next Section) ☛



II. Assessing Your Site

YES	NO		
☐	☐	1.	Has it been longer than five (5) years since you updated or reviewed your resource conservation plan?
☐	☐	2.	Is your soil sandy or gravelly (does your soil drain quickly)?
☐	☐	3.	Is your soil less than three feet deep (to rock or caliche)?
☐	☐	4.	Is your water table less than ten feet from the soil surface ?
☐	☐	5.	Are you losing your valuable topsoil to erosion?
☐	☐	6.	Does stormwater runoff from your property reach surface waters (guts, ponds, coastal waters)?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Site.*** This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

III. Assessing Your Household Waste Water Disposal System

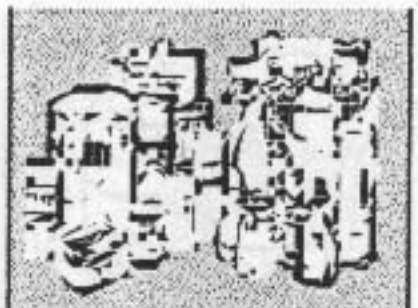
YES	NO		
☐	☐	1.	Do you have an on-site waste water disposal system (septic tank with drainfield or seepage pit)? ***(If you DO NOT have an onsite wastewater system, continue on to next page ☛)***
☐	☐	2.	Is your on-site waste water disposal system less than 50 feet from any water supply system (well or cistern)?
☐	☐	3.	Is your on-site waste water disposal system less than 25 feet from a surface water body (guts, ponds, or coastal waters)?
☐	☐	4.	Has it been over three (3) years since you had your septic tank cleaned out?
☐	☐	5.	Do you regularly use chlorine or chlorine-based products for cleaning (for example, daily application in the toilet bowl)?
☐	☐	6.	Do you dump grease, oil, or leftover household chemicals down your drain?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Household Waste Water Disposal System***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

IV. Assessing Your Household Hazardous Waste Management Practices

YES	NO		
☐	☐	1.	Do you dispose of household products such as furniture polish, paints, stains, and cleaners and/or their containers on your property (including down the drain)?
☐	☐	2.	Do you dispose of used petroleum products, anti-freeze, or batteries on your property?
☐	☐	3.	Do you dispose of leftover or banned pesticides and/or pesticide containers on your property?
☐	☐	4.	Are any of these hazardous products stored near your cistern, well and/or pump room, or accessible to children and/or pets?
☐	☐	5.	Has it been longer than one (1) year since you reviewed or updated your emergency response plan (emergency phone numbers, escape routes, poisoning information)?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Household Hazardous Waste Management Practices***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.



V. Assessing Your Livestock and Poultry Operations

YES	NO		
☐	☐	1.	Do you have livestock and/or poultry on your property? *(If **NO**, go on to next page ☛)*
☐	☐	2.	Do you house livestock and/or poultry within 100 feet of a water supply system (well or cistern) or water body?
☐	☐	3.	Do you store manure within 250 feet of a water supply system (well or cistern) or water body?
☐	☐	4.	Is your livestock and/or poultry facility located up-hill from a water supply system (well or cistern) or water body?
☐	☐	5.	Do you bury dead animals on your property?
☐	☐	6.	Do you spread manure on your gardens and/or fields without adding it into your nutrient management plan?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Livestock and Poultry Operations***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

VI. Assessing Your Fertilizer Storage and Handling Practices

*(If you **DO NOT** use fertilizers, including plant food, go to next page ☛)*

YES	NO		
☐	☐	1.	Has it been a long time (over three years) since you tested your soil's nutrient content recently? (in gardens, lawns, and/or fields)
☐	☐	2.	Is your soil sandy or gravelly? (does your soil drain quickly)?
☐	☐	3.	Do you apply animal manure and/or crop residues to your gardens, lawns, and/or fields?
☐	☐	4.	If the answer to number 3 is **Yes**, Are you **unsure** of the nutrient content of the animal manure you apply? (Have you **not** tested the manure?)
☐	☐	5.	Do you make fertilizer applications based on maximum (hypothetical) garden or crop yields rather than historical or actual yields?
☐	☐	6.	Do you apply all the fertilizer needed by the garden, crop or landscape for the whole growing season all at one time?
☐	☐	7.	Do you store fertilizer products on your property?
☐	☐	8.	Has it been longer than one (1) year since you updated your nutrient management plan?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Fertilizer Storage and Handling Practices***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

VII. Assessing Your Pesticide Storage and Handling Practices

YES	NO		
☐	☐	1.	Do you use or store pesticides (including weed and/or bug killer) on your property? If **No**, continue to next page ➨.
☐	☐	2.	Do you mix, apply or store pesticides without reading the label first?
☐	☐	3.	Are your pesticides stored on wood, gravel, soil, or on a concrete pad without a curb?
☐	☐	4.	Do you have pesticide containers that are damaged, leaking, and/or rusting?
☐	☐	5.	Do you mix, apply or store pesticides within 150 feet of any water supply system (well or cistern) or water body?
☐	☐	6.	Do you fill your sprayer container or tank directly from a drinking water supply system (well or cistern)?
☐	☐	7.	Do you fill your sprayer container or tank with a hose that does not have a check valve or put the hose in the tank so that it is below the water line during filling?
☐	☐	8.	Do you leave your sprayer container or tank unattended while filling?
☐	☐	9.	Do you rinse out your sprayer container or tank near your water supply system (well or cistern) or surface water body?
☐	☐	10.	Do you apply pesticides without recalibrating your sprayer?
☐	☐	11.	Has it been longer than five (5) years since you attended a pesticide applicator training course or workshop?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Pesticide Storage and Handling Practices***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

VIII. Assessing Your Petroleum Product Storage Facilities

YES	NO		
☐	☐	1.	Do you have a petroleum storage container(s) or tank(s) on your property? If **NO**, continue to factsheets or survey ☛.
☐	☐	2.	Is your petroleum storage container(s) or tank(s) less than 100 feet from a water supply or water body?
☐	☐	3.	If you have a petroleum storage tank, is it located underground?
☐	☐	4.	Do you lack protection against leaks or spills from your petroleum storage container(s) or tank(s) (no containment system, catch basin, or concrete spill pad)?
☐	☐	5.	Do you need to develop a method of record-keeping to keep track of petroleum use?

If you have answered ***Yes*** or ***do not know*** the answer to any of the questions in this section, refer to the factsheet in this Bulletin titled ***Assessing Your Petroleum Product Storage Facilities***. This factsheet contains valuable information and will help you develop an Action Plan to reduce the risk of contamination to your drinking water supply.

For More Information

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at B142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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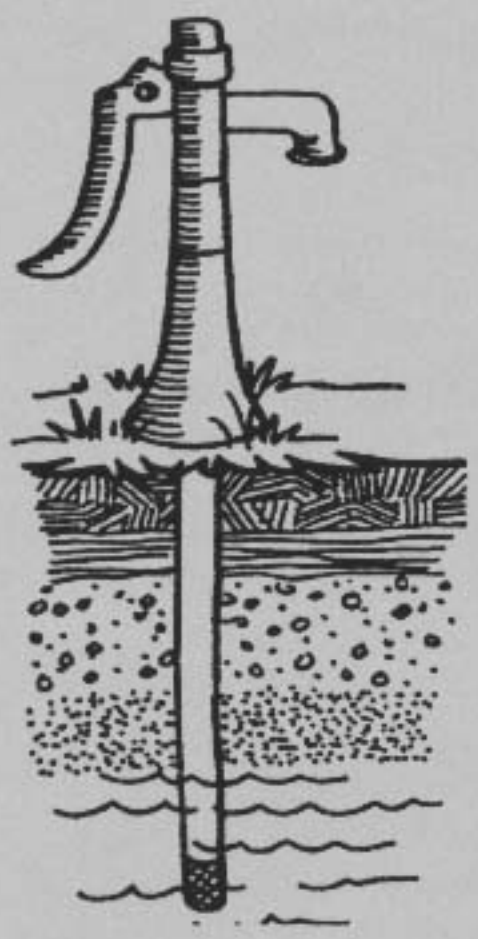


PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

ASSESSING THE CONDITION & LOCATION OF YOUR DRINKING WATER WELL

WHY SHOULD YOU BE CONCERNED?

The condition of your well is important to consider when looking at potential drinking water contamination. You should be concerned about the location and condition of your well and the activities around your well that may affect your drinking water quality.

Bacteria or nutrients from failing septic systems or livestock; toxic chemicals from household hazardous waste, fertilizer, pesticide, or petroleum product storage areas can all enter your well if it is not built or maintained properly. Some contaminants in water may only affect appearance, while others such as microorganisms (bacteria, viruses, etc.), nitrate, and toxic chemicals can be harmful or even fatal.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing the Condition and Location of Your Drinking Water Well** section of your ***Home & Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

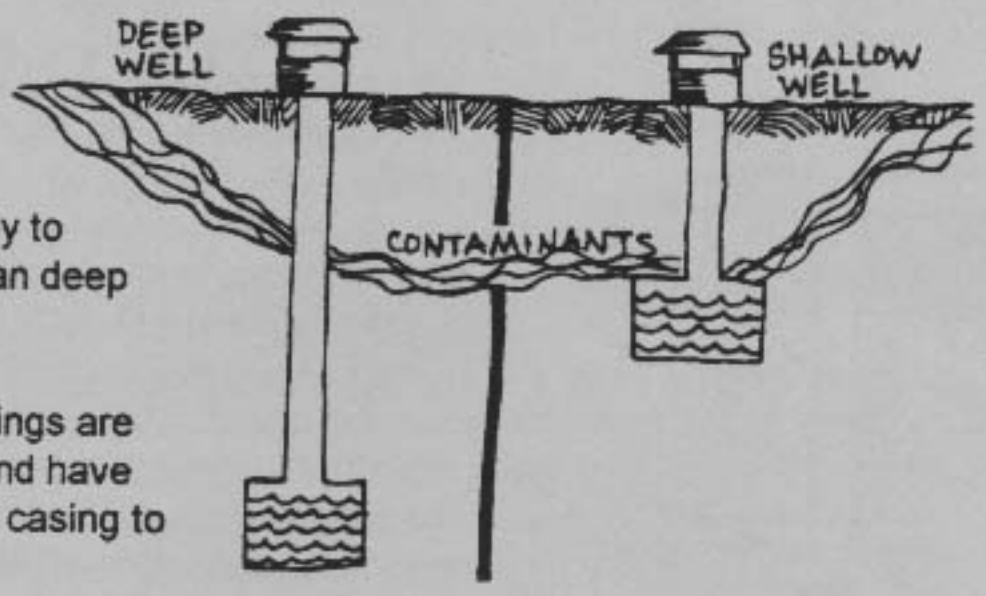
UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. DO YOU HAVE A WELL LESS THAN 50 FEET DEEP?

The depth of your well is important to consider when looking at the potential for ground water contamination. Contaminants that infiltrate (seep into the soil) from the surface are more likely to contaminate shallow, uncased wells than deep wells with properly installed casings.

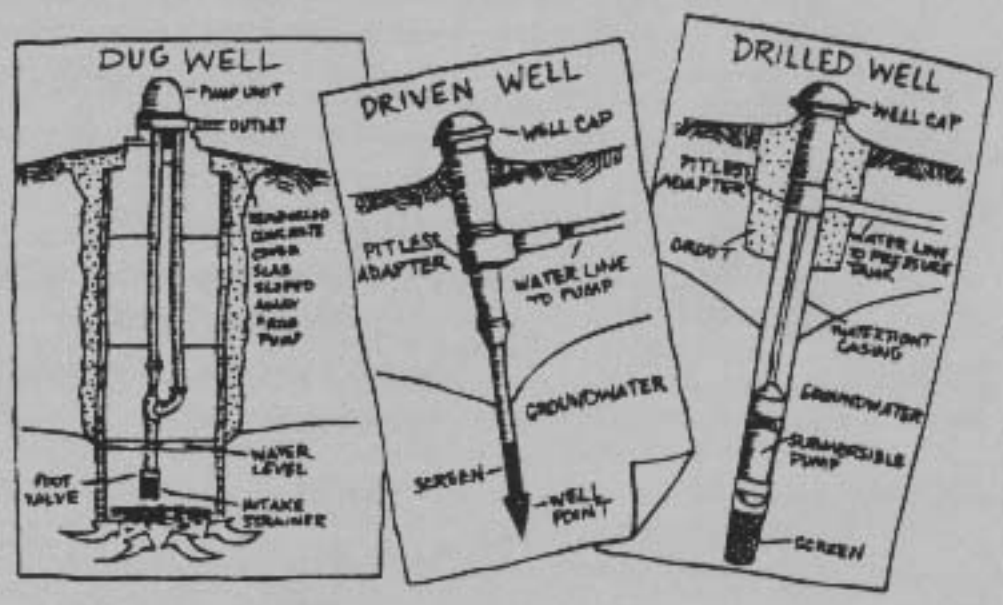


Drilled wells with properly installed casings are deeper than most dug or driven wells and have properly installed grout surrounding the casing to prevent contamination.

2. DO YOU HAVE A DUG WELL OR DRIVEN WELL, RATHER THAN A DRILLED WELL?

There are three main types of wells: dug, driven and drilled wells.

A dug well is a hole normally wider than three feet and is often built by hand. This type of well has the greatest risk of being contaminated because it is usually shallow and often poorly protected from surface water runoff.



A driven well is usually two inches wide or less and is typically installed only in areas with relatively loose materials (such as sand). Because driven wells are usually shallow, less than 50 feet deep, the risk of contamination is high.

A drilled well that has a properly installed casing is usually the least susceptible to contamination and is usually the safest.

3. WAS YOUR WELL BUILT MORE THAN 50 YEARS AGO?

The age of your well is also a factor to consider when determining the potential for drinking water contamination. Older wells are generally shallow and more likely to be located in an area that may be downhill or close to potential contaminant sources. These wells may have structural problems such as inadequate or corroded casings.

4. HAS IT BEEN LONGER THAN THREE YEARS SINCE YOU HAD YOUR WELL WATER TESTED OR DID YOUR WATER TEST POSITIVE FOR NITRATE AND/OR BACTERIA THE LAST TIME IT WAS TESTED?

As part of your well maintenance program, you should test your well water every year. Water testing is the only sure way to know what substances are present in your drinking water.

Some contaminants may only affect appearance, while others, such as bacteria, nitrate and toxins can be extremely harmful or even fatal.

Consult the Department of Health or the DPNR Division of Environmental Protection (DEP) to determine what pollutants you might want to test for, and how to take a water sample. If your sample is positive for bacteria and/or contains a high level of nitrate, consider testing for additional contaminants.

5. DOES YOUR WELL CASING (WELL PIPE) EXTEND LESS THAN 18 INCHES ABOVE THE GROUND LEVEL?

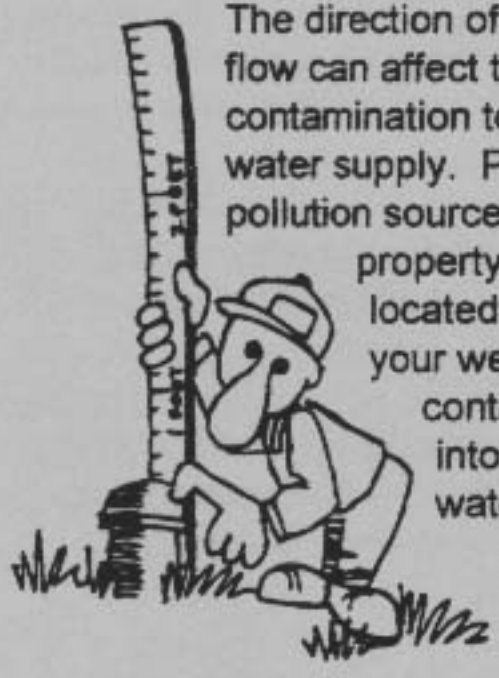
In assessing contamination potential, you need to look at your well casing height.

DPNR-DEP recommends that the well casing or cap (if the well has one) should project at least 18 inches above ground and have a sanitary seal.

In addition, in areas subject to flooding, the top of the casing, cap, or well cover should be at least 2 feet above the highest known flood elevation.

The area surrounding the well casing should also be sealed with clay soil or another impervious material. Surface water that enters a well casing can directly channel contaminants to your drinking water. Virgin Islands' regulations require a casing depth of at least 8 feet below ground for a dug well. Also, the top of the well casing cannot end in basements, pits, or other areas below ground level.

6. IS THERE A DEPRESSION OR HOLE AROUND YOUR WELL CASING?



The direction of surface water flow can affect the risk of contamination to your drinking water supply. Potential pollution sources on your property should be located downhill from your well. This way, if contaminants get into the surface water, they will likely flow away from the well.

If the surface of the ground around your well casing is lower than the surrounding landscape, it provides an area for surface water to collect. Contaminants can either leak down along the well casing or through cracks in the well casing. DPNR requires all new wells to have a concrete curb around the well to prevent contamination.

7. CAN YOU SEE ANY CRACKS OR HOLES IN YOUR WELL CASING?

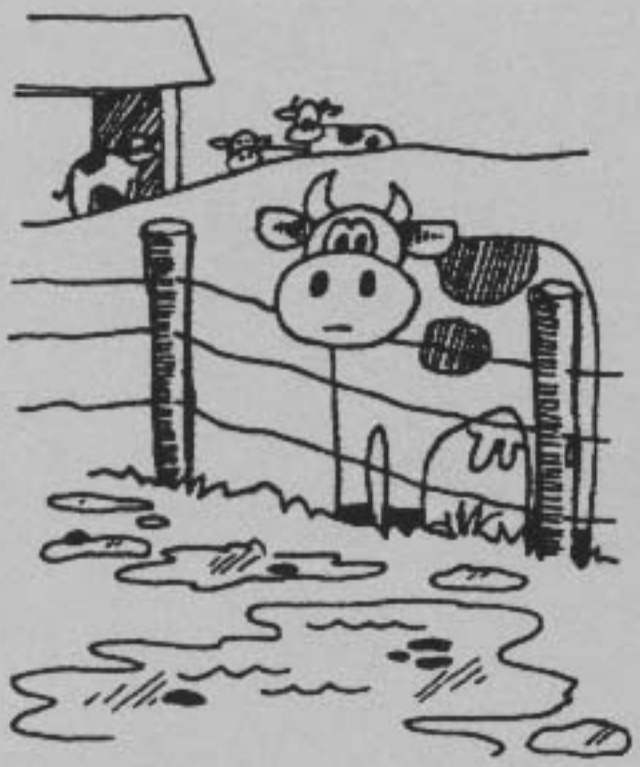
The condition of your well casing and cap needs to be inspected periodically. Wells are commonly cased with steel, plastic or concrete to prevent the collapse of the borehole. The space between the casing and the sides of the borehole is filled with grout, cement, concrete, or bentonite (clay), depending on the geological materials present. The casing and grout prevent pollutants from seeping into the well.

To prevent contaminants from flowing into the well casing, a tight-fitting, vermin-proof cap must be installed on the well when it is built. The cap should have a screened vent that is turned downward so air can enter the well. The vent should be high enough so it will not allow surface water to enter the well. Not all wells are capped; some wells have pumps mounted on top of the casing.

It is possible for the well casing to corrode or crack and the well cap to become damaged. You should visually inspect the above-ground portion of your well for holes or cracks and make sure the cap is secure. You can also inspect the inside of the casing by removing the well cap and shining a light around the inside. (However, most wells in the Virgin Islands are too small for this.)

If you have a shallow well, you may also be able to determine the condition of your well casing. If you hear water running when the pump is not operating, there could be a crack or hole in the well casing.

8. IS YOUR WELL DOWNHILL FROM ANY POTENTIAL CONTAMINATION SOURCES (SEPTIC SYSTEM; PESTICIDE, FERTILIZER, MANURE, OR PETROLEUM STORAGE AREA; OR OTHER POLLUTION SOURCES)?



Whether a well taps water just below ground or hundreds of feet deep, its location is a crucial safety factor. A well downhill from a livestock yard, a leaking petroleum storage tank or a failing septic system runs a much greater risk of contamination than a well on the uphill side of these pollution sources.

Surface slope does not always indicate the direction a pollutant might flow once it gets into the ground. In shallow aquifers, ground water flow is often in the same direction as the surface flow. If the aquifer supplying water to your well is deep below the surface, though, its slope may be different than that of the land surface.

Locating the well in a safe place takes careful planning and consideration. Factors such as direction of surface drainage and ground water flow are important. When planning for a new well, try to locate it up hill from potential contaminants. On existing wells that are down hill from contaminants, consider removing contaminant sources or diverting surface water runoff away from the well.

9. IS YOUR WELL LOCATED CLOSER TO POTENTIAL POLLUTION SOURCES THAN V.I. CODE ALLOWS?

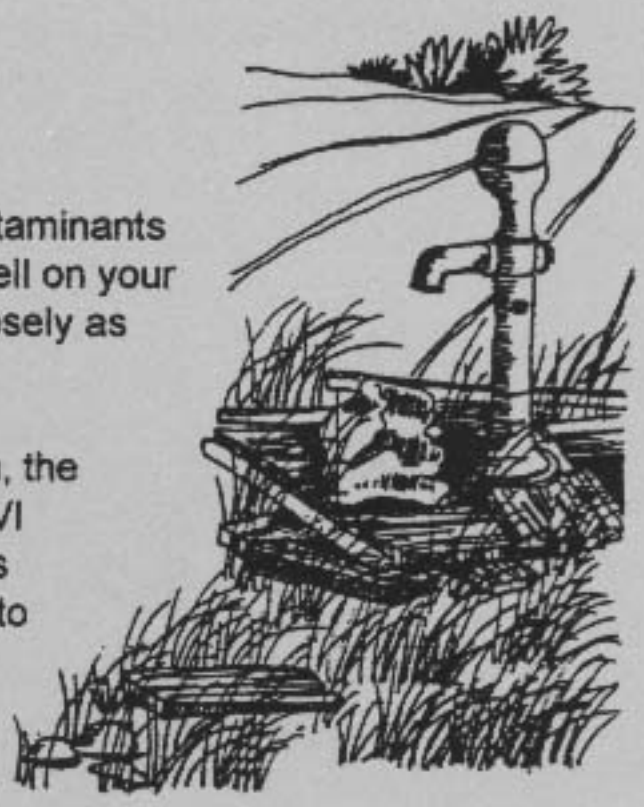
Besides being uphill from potential pollution sources, your well should meet minimum separation distances from potential pollution sources.

For example, Virgin Islands' regulations require that the minimum distance between your well and your septic tank and leach field should be at least 50 feet. The minimum separation distance between a well and seepage pit should be at least 100 feet. Minimum separation distances are required but greater distances are better. In some areas, site conditions (like soil texture) may require that the separation distance be much greater than the minimum allowed. For more information on minimum separation distances, contact the DPNR Division of Environmental Protection or Permits Division.

10. ARE THERE ABANDONED WELLS ON YOUR PROPERTY THAT HAVE NOT BEEN PROPERLY PLUGGED?

Abandoned wells are a hazard and a direct pathway for contaminants to enter the ground water. When you plug an abandoned well on your property, Virgin Islands guidelines should be followed as closely as possible.

Consult with the DPNR Division of Environmental Protection, the Department of Health, your local USDA-NRCS office, the UVI Cooperative Extension Service, or the UVI Water Resources Research Institute for information on the proper procedures to close your well.



FOR MORE INFORMATION

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The Farm*A*Syst/Home*A*Syst Program is funded nationally by: USDA Cooperative State Research, Education and Extension Services, USDA Natural Resources Conservation Service, and the U.S. Environmental Protection Agency. The program supports voluntary pollution prevention to protect surface and ground water through a partnership with governmental agencies and the private sector.

Assessing the Condition and Location of Your Drinking Water Well

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Questions 1,2,3,4	Have your water tested annually for the most common contaminants (nitrate and bacteria) to see if a problem actually exists.	Department of Health, DPNR Division of Environmental Protection (DEP), UVI Cooperative Extension Service (CES), UVI Water Resources Research Institute (WRRI), USDA-NRCS, or private laboratory (for water testing).		
Questions 5,6,7	Measure well casing to make sure it is at least 18 inches above the ground surface. Extend casing if necessary. Fill in depression or hole and create a mound around the well. Have visible holes in the casing repaired.	Health Dept., DPNR-DEP, UVI-CES, UVI-WRRI, USDA-NRCS, or a licensed well driller.		
Questions 8,9	Relocate sources of contaminants down hill from the well.	Health Dept., DPNR-DEP, UVI-CES, UVI-WRRI, USDA-NRCS, or a licensed well driller.		
Question 10	Properly close all abandoned wells on your property.	Health Dept., DPNR-DEP, UVI-CES, UVI-WRRI, or USDA-NRCS.		

Phone Numbers:

Dept. Of Health: 773-1311 (St. Croix); 774-6880 (St. Thomas -St. John)
DPNR-DEP: 773-0565 (St. Croix); 777-4577 or 774-3320 (St. Thomas - St. John)
USDA-NRCS: 778-8699
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
UVI-WRRI: 693-1063

ASSESSING THE CONDITION OF YOUR RAINWATER COLLECTION SYSTEM (CISTERN)

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

The condition of your rain water collection system (cistern) is an important factor that could affect potential contamination of your drinking water supply. You should be especially concerned about the condition and maintenance of your cistern system.

Bacteria and nutrients from failing septic systems or livestock, and toxic chemicals from household hazardous waste, fertilizer, pesticides, or petroleum product storage areas can all enter your cistern through cracks or imperfections. Bacteria and toxic chemicals can also enter cisterns from rooftops and unscreened openings. Some contaminants that can enter cistern water may only affect appearance, while others such as bacteria, nitrate, metals, and other toxins can be very harmful or even fatal.

WHAT CAN YOU DO?

This worksheet is designed to give you information about contaminants that can potentially harm your drinking water supply.

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing the Condition of Your Rain Water Collection System** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

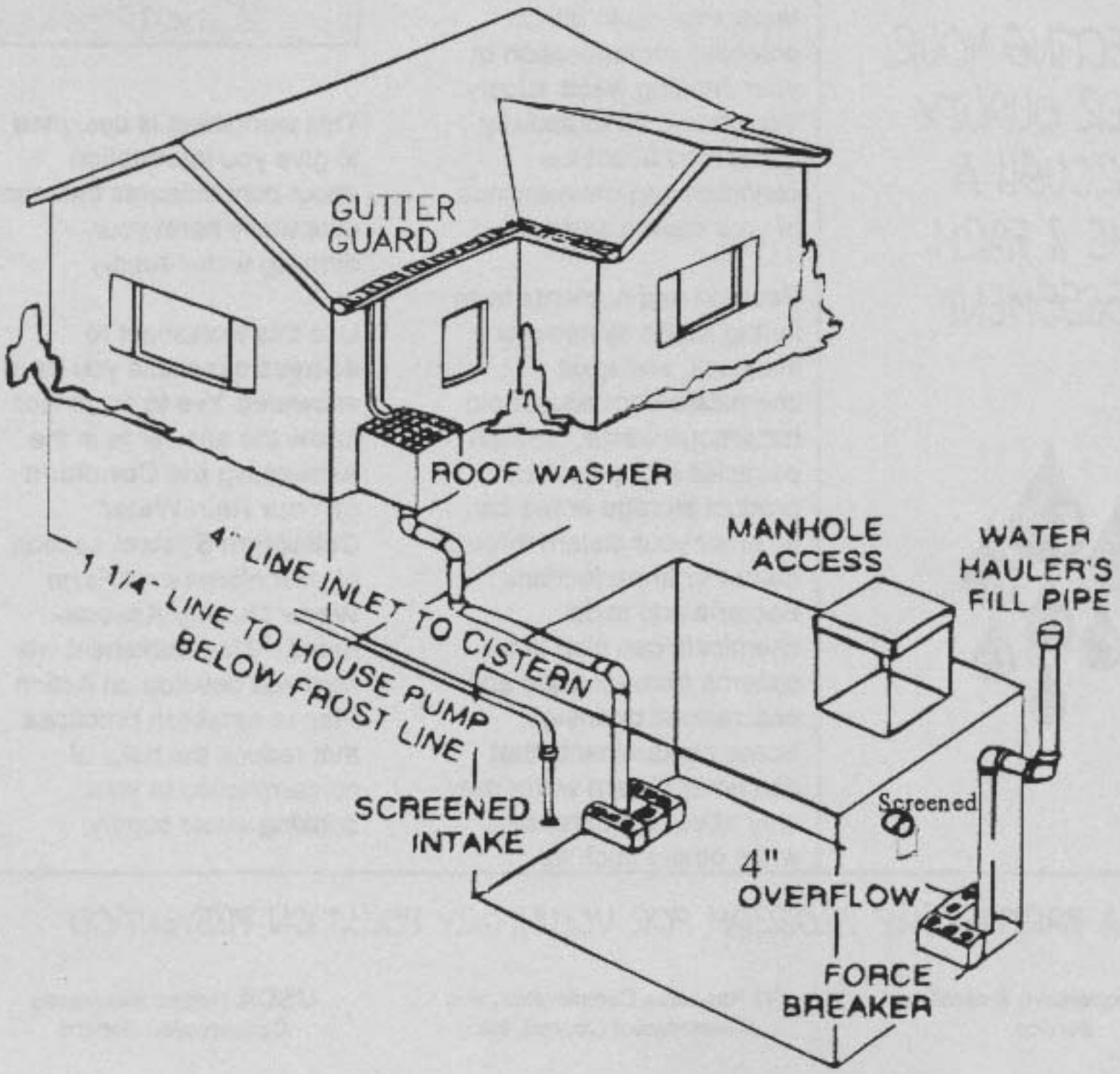
UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. HAS IT BEEN OVER THREE YEARS SINCE YOUR CISTERN WAS EMPTIED & CLEANED?

Your cistern water quality is directly dependent upon how you manage your collection system. You should empty and clean your cistern every three to five years to remove sludge deposits. This will minimize the amount of coliform bacteria and other contaminants in your drinking water. Some people may need to clean their cisterns more often, depending on how much vegetation is overhanging the roof or other parts of the collection system. Screens and downspouts need to be inspected and cleaned on a more frequent basis, ideally once a month or after heavy rainstorms.



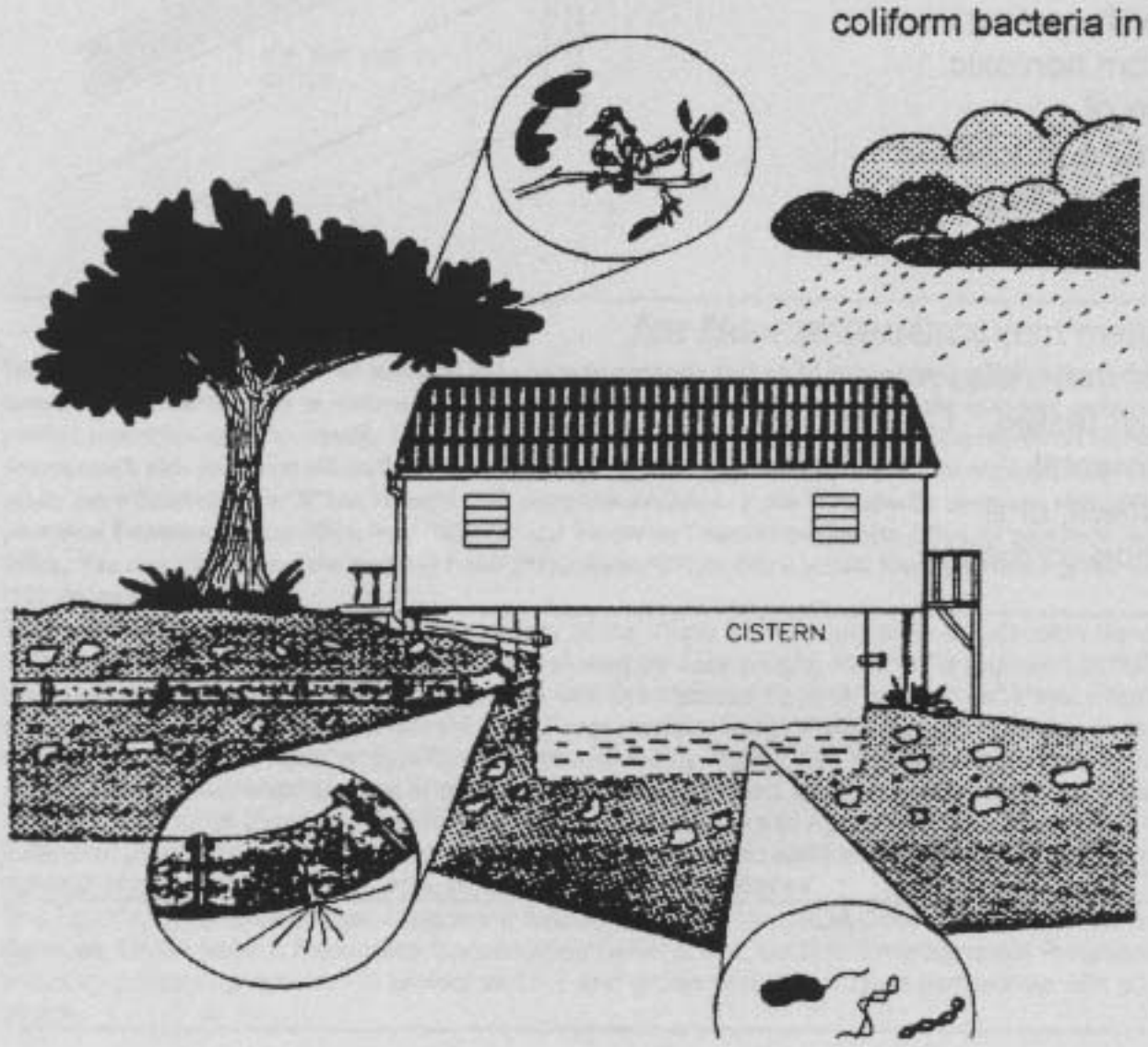
2. HAS IT BEEN OVER ONE MONTH SINCE YOU TREATED YOUR CISTERN WATER WITH CHLORINE?

You should add chlorine to the water in your cistern on a regular basis to disinfect (kill bacteria and other disease-causing organisms) your water supply. Treat cistern water with five fluid ounces of liquid chlorine bleach per 1000 gallons of water monthly or bimonthly, depending upon the frequency and amount of rainfall or upon weekly testing of the chlorine residual. If there is lots of organic matter (leaves and other debris) in the cistern, you may have to add chlorine more frequently. For further information on chlorinating your cistern, contact the DPNR Public Water Supply Supervision Program, or the UVI Water Resources Research Institute.

3. HAS IT BEEN OVER ONE MONTH SINCE YOU CLEANED DEBRIS FROM YOUR ROOF AND/OR YOUR COLLECTION SYSTEM (DRAINS, PIPES, CISTERN)?

Your maintenance program should include regular cleaning of rooftops (or other collection surfaces), gutters, and pipes leading to the cistern. This will prevent clogging of the system and reduce bacterial contamination. Roofs, gutters and screens should be checked and cleaned every month of debris.

You should inspect the collection system for blockages and/or debris after every major storm event. (Studies conducted in the Virgin Islands have found leaf litter and other organic debris left on rooftops and in gutters and cisterns to be the primary source of coliform bacteria in cistern drinking water).



Trees should be pruned back so that branches do not hang over rooftops, gutters, or other collection areas.

4. IS YOUR ROOF MADE OF OR COATED WITH TOXIC MATERIALS (i.E. ASBESTOS, LEAD PAINT, ZINC, ETC.)?

Many roof coatings, paints and collection materials can contain toxic substances such as zinc, copper, and lead that can contaminate your cistern water. Asphaltic compounds, glues or adhesives, and elasometric roofing can contain volatile organic compounds that can also get into cistern water. Even temporary roof coverings, such as tarps, may contain toxic compounds or leach plastics into cistern water.

For example, galvanized roofing is a source of zinc, roofs with copper flashing can have high copper and lead concentrations, and some roof coatings or paints may contain lead. You should consider treating or replacing your roof covering with coatings or components that are made from nontoxic materials. The DPNR Division of Environmental Protection is in the process of promulgating regulations requiring testing of roofing materials for toxic compounds.

If you think your collection system may contain or be treated with toxic materials, you should have your drinking water tested. Call the DPNR Division of Environmental Protection, the Health Department, or a private laboratory for information on getting your cistern water tested.

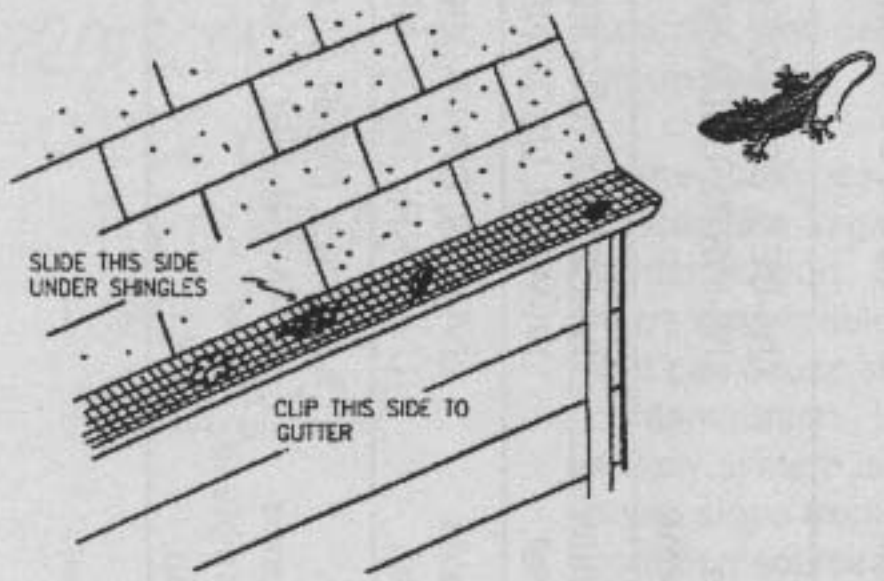
5. ARE THERE PLACES ON YOUR ROOF, COLLECTION AREA, OR IN YOUR GUTTER SYSTEM WHERE WATER STANDS INSTEAD OF FLOWING INTO YOUR CISTERN?

Standing water on roofs, in the collection system, or in improperly sloped gutters creates birdbaths, mosquito breeding areas, and stagnant water that can harm the quality of water entering your cistern.

Inspect your system after a heavy rain to see if you have any standing water. Reshape gutter areas where water stands.

6. CAN ANIMALS OR DEBRIS ENTER THROUGH THE SCREEN(S) ON YOUR RAINWATER COLLECTION SYSTEM?

All openings to your cistern (including the overflow) should be screened to prevent animals and debris from entering. Check all screens after major storms to remove any debris that may have collected. It is also a good idea to fence any portion of your collection system that may be accessible to animals or children.



7. HAS IT BEEN LONGER THAN TWO YEARS SINCE YOU INSPECTED YOUR CISTERN FOR CRACKS OR LEAKS?

Pollutants from failing septic systems, livestock areas, or leaking petroleum storage containers can enter cisterns through cracks or leaks, contaminating your drinking water supply. Check your cistern for leaks and cracks on a regular basis, or especially if you notice abnormal water loss. The presence of tree roots in your cistern is a good indicator that you may have cracks or leaks. Any cracks or leaks found in the cistern should be immediately filled and sealed.

FOR MORE INFORMATION

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at 8142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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Assessing the Condition of Your Rain Water Collection System (Cistern)

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Question 1	Empty and clean cistern every 3-5 years.	UVI Cooperative Extension Service (CES), DPNR Division of Environmental Protection (DEP) Public Water Supply Supervision Program (PWSS), UVI-Water Resources Research Institute (WRRI), USDA-NRCS office, or Conservation District (VICD) office		
Question 2	Add chlorine to your cistern at recommended rates and intervals.	UVI-CES, DPNR-DEP-PWSS, UVI-WRRI, USDA-NRCS or VICD		
Question 3	Develop a regular maintenance schedule. Inspect after large storms.	UVI-CES, DPNR-DEP-PWSS, UVI-WRRI, USDA-NRCS or VICD		
Question 4	Cover with nontoxic material or remove toxic material.	UVI-CES, DPNR-DEP-PWSS, UVI-WRRI, USDA-NRCS or VICD		
Question 5	Inspect gutters for places where water may stand.	UVI-CES, DPNR-DEP-PWSS, UVI-WRRI, USDA-NRCS or VICD		
Question 6	Inspect and repair all damaged screens. Fence collection areas accessible to animals and/or children.	UVI-CES, DPNR-DEP-PWSS, UVI-WRRI, USDA-NRCS or VICD		

Phone Numbers:

UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
UVI-WRRI: 693-1063
DPNR-DEP-PWSS: 777-4577 (all islands)
USDA-NRCS & VICD: 778-8699

ASSESSING YOUR SITE

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

The physical characteristics of your property can affect your drinking water quality. Some of these factors include soil type, slope of the land, depth and type of bedrock, and depth to ground water.

Some soil types are more susceptible to ground water contamination. Others are more susceptible to erosion that can cause surface water contamination. If your water supply system is located down slope from potential pollution sources, it is at a higher risk of contamination.

Because most pollutant breakdown occurs in the soil, sites with shallow or sandy soils, and soils over fractured bedrock, will have a higher potential to contaminate groundwater.

Also, areas with high water tables have a higher risk of contaminating groundwater.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing Your Site** section in your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. HAS IT BEEN LONGER THAN FIVE YEARS SINCE YOU UPDATED OR REVIEWED YOUR RESOURCE CONSERVATION PLAN?

The management practices you use will influence your property as well as your neighbors. If you do not have a resource conservation plan, you should develop one. The plan should address: soil, water, air, plants, and animals and how they relate to the eco-system. The plan should include proper management of all areas around your home, including your residence and all other land uses. The US Department of Agriculture Natural Resources Conservation Service (USDA-NRCS), VI Department of Agriculture, University of the Virgin Islands Cooperative Extension Service (UVI-CES) or Department of Planning and Natural Resources Coastal Zone Management Program (DPNR-CZM) can help you in developing a plan.

2. IS YOUR SOIL SANDY OR GRAVELLY (DOES YOUR SOIL DRAIN QUICKLY)?

One key to your resource conservation plan is knowing the type of soils on your property. The soil provides a life support system for growing plants, acts as a filter to reduce ground water contamination.

Coarse textured soils such as sands are more susceptible to ground water contamination. These soils have larger pore spaces between the soil particles, allowing water to carry contaminants quickly to ground water.

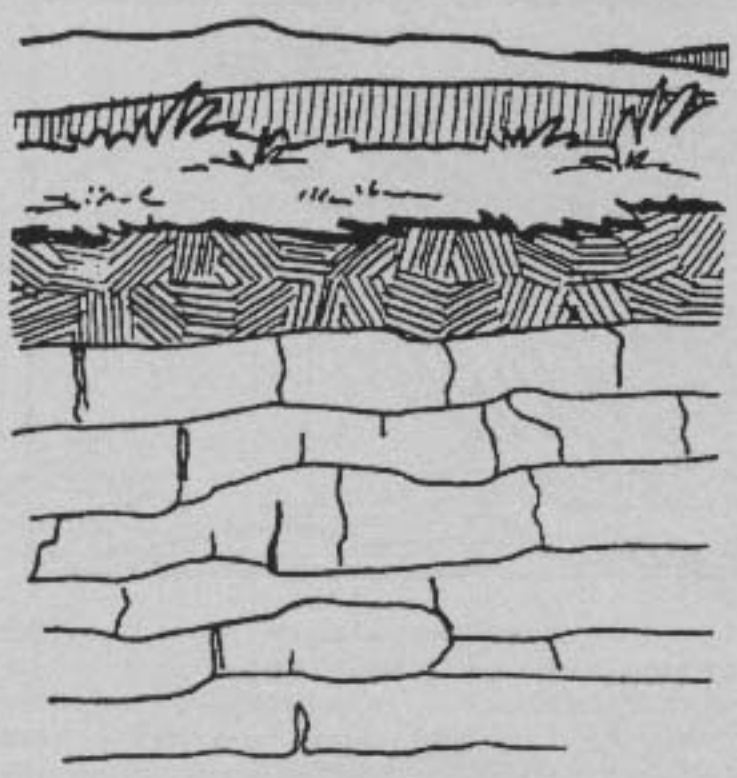
Finer textured soils such as silt loams and clays slow water movement and provide greater filtering. They allow bacteria and other soil organisms to break down contaminants before they reach ground water. However, these types of soils are more susceptible to surface water runoff and may put surface water bodies at risk of contamination.

To have your soil tested to find out what its texture is, contact your local UVI-Cooperative Extension Service office.

3. IS YOUR SOIL LESS THAN THREE FEET DEEP (TO ROCK OR CALICHE)?

The depth of soil over bedrock is an important factor in reducing risk to ground water. Generally, soils that are less than three feet to bedrock are considered high risks to ground water contamination.

The type of bedrock below the soils also impacts ground water contamination risks. Highly fractured rock structures, such as limestone or caliche, can provide a direct path for pollutants to enter ground or surface waters.



4. IS YOUR WATER TABLE LESS THAN TEN FEET FROM THE SOIL SURFACE?

The depth to the water table under your property may impact the water quality of your well. Deeper aquifers generally have lower pollution risks than shallow aquifers. Water tables that are less than 10 feet from the surface are generally considered to have high contamination risk.

You should know how deep the water table is under your property. If you do not know the depth to groundwater and cannot measure it, consult your well log or local well driller. The well log contains a record of the material drilled through and the depth to water. If you do not have a well log, talk to the well driller or previous property owner for more information.

In most cases, your ground water supply is coming from water that soaks through the soil and rock under your property. Your management practices can directly affect the quality of your drinking water supply.

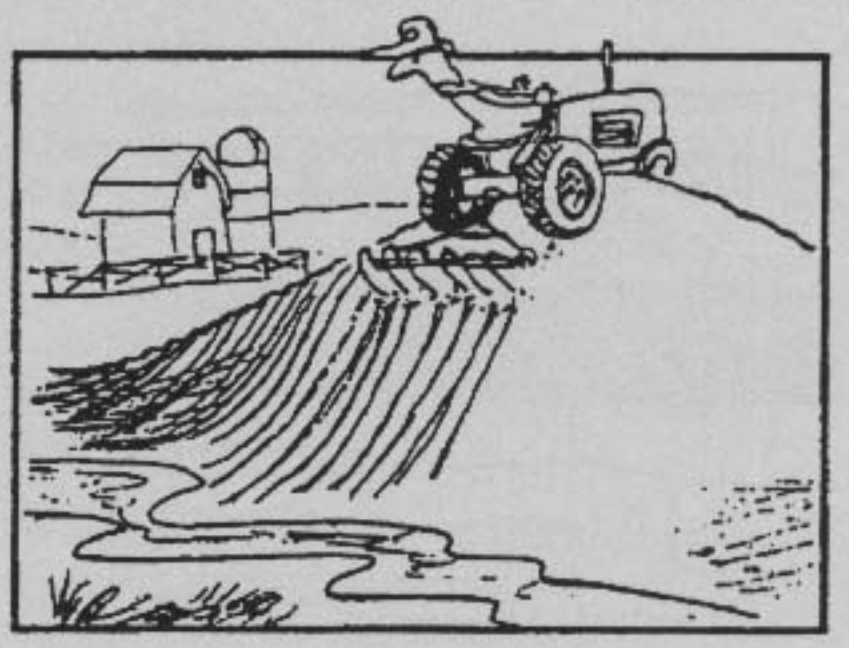
5. ARE YOU LOSING YOUR VALUABLE TOP SOIL TO EROSION?

Soil erosion happens when water moves across the soil surface, picking up and moving soil particles. This process can be accelerated with intensive land use and can harm water quality with sediment, nutrients, oils and grease, and other chemicals attached to soil particles. **Sediment is the most prevalent pollutant impairing water quality in the Virgin Islands.**

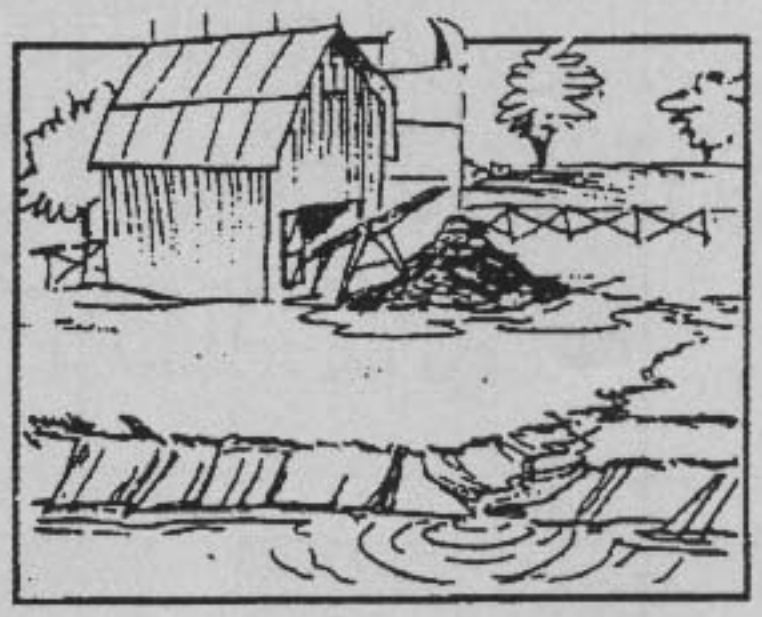
Erosion of productive topsoil damages crops, gardens and landscapes by removing the nutrient-rich upper layer of soil that plants need to thrive. Soil eroded from farms, yards and construction sites can damage downhill properties and block roadways. Eroded soil silts-in harbors and channels, leading to more frequent dredging. Finally, eroded soil smothers coral reefs and seagrass beds, clouds water and reduces visibility for sight-feeding fish, impairs recreational use of coastal waters (for swimming, bathing, snorkeling, and diving), and harms fisheries.

By controlling erosion, you will help to protect water quality and maintain the long term productivity of your land. Soil erosion can be controlled through the implementation of conservation practices and/or best management practices.

Most people feel that they are doing a good job of controlling erosion on their property. However, there may be ways to improve your erosion control practices. If your resource conservation plan is over five years old, it should be reviewed to see if new technologies can further reduce erosion. If you do not have a resource conservation plan, you need to develop one. USDA-NRCS, DPNR-CZM, or UVI-CES can assist you in developing or revising your plan.



6. DOES STORM WATER RUNOFF FROM YOUR PROPERTY REACH SURFACE WATERS (GUTS, PONDS, COASTAL WATERS)?



Runoff, from storm water, drainage, or irrigation practices, can harm nearby surface waters (guts, ponds, and coastal waters). The level of impact to surface waters is determined by the amount of storm water runoff, the distance to surface waters, the land slope, the contaminants in the path of the running water, and the conservation practices you use.

FOR MORE INFORMATION

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at 8142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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Assessing Your Site

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Question 1,5,6	Develop or modify your Resource Conservation Management Plan to reduce soil erosion and impacts on water quality.	USDA-Natural Resources Conservation Service (NRCS), UVI-Cooperative Extension Service (CES), V.I. Department of Agriculture (DOA), or VI Conservation District (VICD)		
Question 2,3,4	Find out your soil type. Find out the depth to and type of bedrock under your property. Find out the depth to your water table. Adjust your management practices to reduce water quality impacts.	USDA-NRCS, UVI-CES DOA, or VICD		

Phone Numbers:

DOA: 778-0997 (St. Croix); 774-5182 (St. Thomas - St. John)
USDA-NRCS: 778-8699
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
VICD: 778-9838

ASSESSING YOUR HOUSEHOLD WASTE WATER TREATMENT SYSTEM

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

Virtually all suburban and rural residents use a septic system or some kind of on-site waste water disposal system. While these systems are generally economical and safe, household waste water contains contaminants that may harm water quality.

Potential contaminants in household waste water include disease-causing bacteria, infectious viruses, household chemicals, and excess nutrients such as nitrogen.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing the Condition and Location of Your Household Waste Water Treatment System** section in your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. DO YOU HAVE AN ON-SITE WASTE WATER DISPOSAL SYSTEM (SEPTIC TANK WITH DRAIN FIELD OR SEEPAGE PIT)?

Household waste water treatment systems are used to treat and dispose of waste water from the home. A household waste water treatment system that is properly built and maintained will function for many years and can minimize the potential for ground and surface water contamination.

Most states have made seepage pits and cesspools illegal because of their poor ability to treat waste water. However, many older homes in the Virgin Islands may still use these practices. If you have one of these types of systems, you may want to contact the Department of Planning and Natural Resources Division of Environmental Protection (DPNR-DEP) or Department of Health to ensure that your system is working properly.

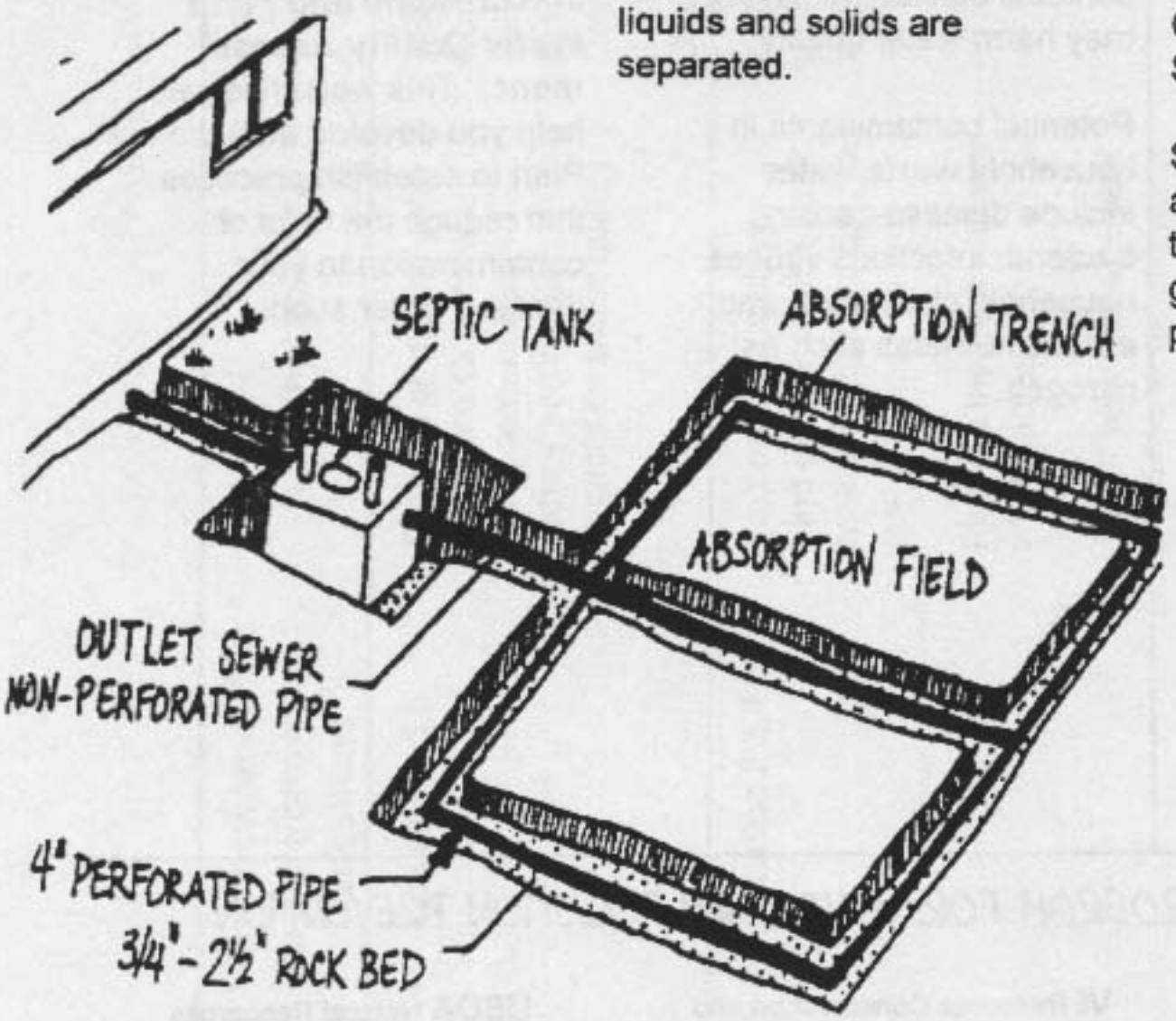
An individual household waste water treatment system, sometimes called a septic system, typically consists of a septic tank and drain field. Waste water from bathrooms, kitchen, and laundry room is routed to the septic tank where liquids and solids are separated.

Soft solids such as grease and soap float to the top and form a scum layer. Other solids settle to the bottom of the tank where they are partially decomposed by bacteria.

Liquid from the septic tank is discharged into the drain field where harmful, disease-causing microorganisms, organics, and nutrients are removed or broken down.

Some homeowners in the Virgin Islands use systems that separate out wash room and bathroom sink and shower waste water for grey water irrigation use. For more information on these types of systems, contact DPNR-DEP, USDA Natural Resources Conservation Service (NRCS) or the UVI Cooperative Extension Service (CES).

System design and location are the two important factors to consider when assessing groundwater contamination potential.



2. IS YOUR ON-SITE WASTE WATER DISPOSAL SYSTEM LESS THAN 50 FEET FROM ANY WATER SUPPLY SYSTEM (WELL, CISTERN, ETC.)?

A primary concern related to the location of your on-site waste water disposal system is a safe distance from your water supply system. In the Virgin Islands, private septic systems (tanks and leach fields) are required to be at least 50 feet from a well or cistern. Seepage pits must be at least 100 feet away from a water supply. Contact the DPNR Division of Permits or Department of Environmental Protection (DEP) to determine minimum separation distances for your system.

3. IS YOUR ON-SITE WASTE WATER DISPOSAL SYSTEM LESS THAN 25 FEET FROM A SURFACE WATER BODY (GUTS, PONDS, COASTAL WATERS, ETC.)?

If your on-site waste water disposal system is located near a surface water body, there is an increased chance that it can harm water quality. Discharges from improperly maintained systems may directly enter surface waters, polluting the water and causing a public health hazard.

Virgin Islands law requires septic systems to be at least 25 feet away from surface waters, however, a 100 foot minimum distance is safer.

4. HAS IT BEEN OVER 3 YEARS SINCE YOU HAD YOUR SEPTIC TANK CLEANED OUT?

Poor management of your septic system increases the risk of your drinking water becoming contaminated. Proper maintenance is one of the most important factors in making sure a septic system will function well over a long period of time. Maintenance involves regular pumping and limiting the types of materials disposed to those that will not damage your septic system.

Most properly-sized septic tanks need to have the solids pumped out every two to three years. If a garbage disposal is used, the septic tank should be pumped out more frequently. Pumping frequencies are estimates, the actual time between septic tank pumping will depend on the amount of solids entering your tank. Check with local septic tank pumpers for more information.

5. DO YOU REGULARLY USE CHLORINE OR CHLORINE-BASED PRODUCTS FOR CLEANING?

The excessive use of chlorine as a household cleaning product (especially daily use in the toilet bowl) can harm your septic system.

Chlorine in your septic system acts the same way as in your cistern — it kills bacteria and other micro-organisms. In your septic system, the chlorine is killing beneficial microorganisms that break down ("digest") the waste. These organisms are necessary for your septic system to work properly. By killing these microorganisms, you can cause your septic system to fail.

There are many non-chlorinated cleaning products available that may be used as an alternative. Make sure to read the product label before making a purchase.

6. DO YOU DUMP GREASE, OIL, OR LEFTOVER HOUSEHOLD CHEMICALS DOWN YOUR DRAIN?

You should always avoid dumping grease and oil down your drain. They can plug the pipes or build up in the septic tank. Keep a separate container for used grease and oil. Properly dispose of it with other household garbage.

Household chemicals that are poured down the drain can damage your waste water disposal system. Bacteria naturally present in the septic system break down the sewage. When household chemicals are added to the system, they may destroy these beneficial bacteria, reducing the effectiveness of your septic system. There are many cleaning products available that are not toxic to your septic system. Look for those labelled "***septic-system safe***" or "***biodegradable***".

FOR MORE INFORMATION

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at B142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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ASSESSING YOUR HOUSEHOLD WASTE WATER TREATMENT SYSTEM

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Questions 1,2,3	Know the location of your waste water disposal system. Test drinking water for bacteria and nitrate. Learn more about your soil type.	DPNR-Division of Environmental Protection (DEP) and Division of Permits, Department of Health, or UVI-CES office.		
Question 4	Monitor septic tank and pump scum and sludge when needed.	Local septic tank pumping service, UVI-CES office, or DPNR-DEP.		
Questions 5,6	Limit use of chlorine or use non-chlorinated cleaning products. Do not dispose of grease, oil or other household chemicals down your drain or toilet.	DPW-Division of Environmental Services or DPNR-DEP to determine where these products can be disposed of, or UVI-CES office for alternative cleaning product information.		

PHONE NUMBERS:

DPW Environmental Services Division: 773-1290 (St. Croix); 776-4844 (St. Thomas - St. John)
DPNR-DEP: 773-0565 (St. Croix); 777-4577 or 774-3320 (St. Thomas - St. John)
DPNR-Permits: 773-1290 (St. Croix); 774-3320 (St. Thomas - St. John)
Department of Health: 773-1311 (St. Croix); 774-6880 (St. Thomas - St. John)
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)

ASSESSING YOUR HOUSEHOLD HAZARDOUS WASTE MANAGEMENT PRACTICES

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

Most people are generally aware of the hazards of commonly-used pesticides. However, you may be less aware of the hazards that household chemicals may pose to yourself and the environment.

Consider the variety of products commonly used in households and on farms: paints, solvents, oils, cleaners, wood preservatives, batteries, adhesives, and pesticides. Small amounts of common chemicals are often spilled, buried, dumped or flushed onto the ground or down the toilet. Some common, unsafe disposal practices may not only threaten your drinking water, but also may be illegal.

Proper use and disposal of household chemicals can reduce risks to both human health and water quality.

Your drinking water is least likely to be contaminated by hazardous chemicals if you use products correctly and dispose of wastes at an approved disposal site. Proper disposal practices are essential to avoid contamination risks that could harm the water supplies and health of yourself and others.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered *Yes* to or ***do not know*** the answer to in the **Assessing Your Household Hazardous Waste Management Practices** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. DO YOU DISPOSE OF HOUSEHOLD PRODUCTS SUCH AS FURNITURE POLISH, PAINTS, STAINS, AND CLEANERS AND/OR THEIR CONTAINERS ON YOUR PROPERTY?

Household chemicals such as furniture polish, paints, stains, and drain cleaners can contaminate your drinking water supply.

Some Virgin Islands residents have trash pits or burn barrels located on their property. Continual use of these trash pits/burn barrels over the years can lead to a build up of hazardous chemicals in a relatively small area. The potential for dangerous amounts of these chemicals to impact ground and surface waters increases significantly when they are concentrated in this manner.

Some communities have household hazardous waste collection days. These are usually advertised. The Department of Planning and Natural Resources Division of Environmental Protection (DPNR-DEP) or Department of Public Works may have more information about household hazardous waste collections.

2. DO YOU DISPOSE OF USED PETROLEUM PRODUCTS, ANTIFREEZE, OR LEAD-ACID BATTERIES ON YOUR PROPERTY?

Do **not** dispose of these materials on your property. It is illegal to dispose of used petroleum products, antifreeze and lead-acid batteries on private or public property, or to dump these products onto the ground or into sewers or drainage channels. It is also illegal to dispose of hazardous waste in Virgin Islands' sanitary landfills. Businesses generating hazardous wastes must send these materials by an approved carrier to an EPA-approved facility for disposal.

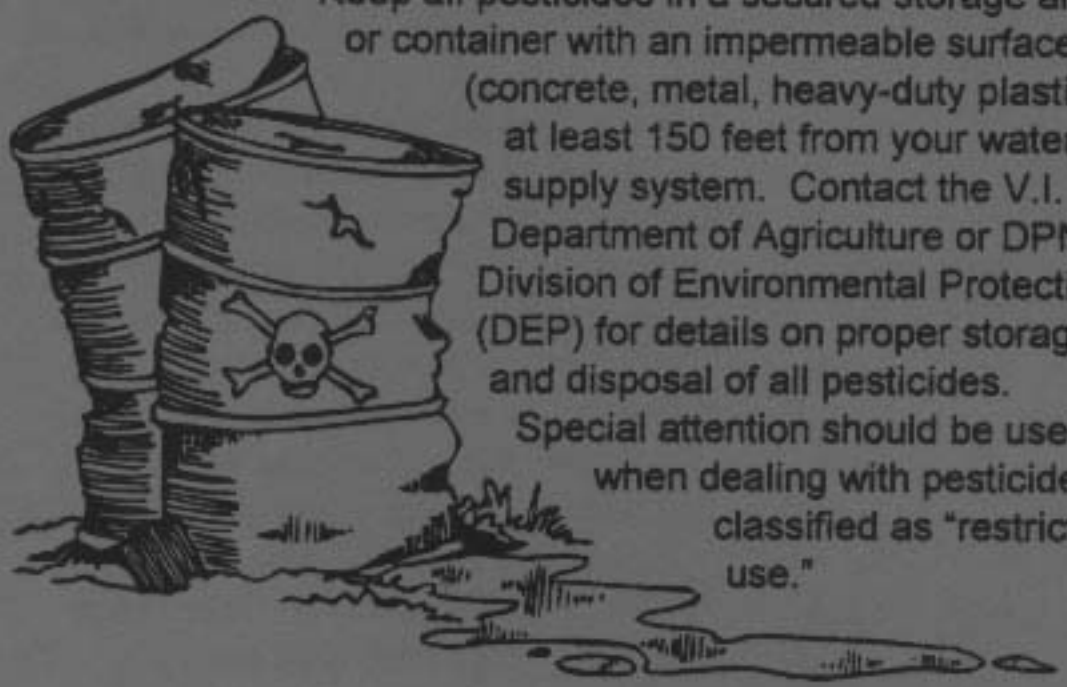
Used oil contains toxic chemicals, cancer-causing hydrocarbons, and heavy metals (lead, zinc, arsenic, chromium, cadmium) that are harmful to public health and the environment. Dumping used oil in storm drains, guts and on the ground pollutes our surface and ground water supplies. Used oil in the garbage seeps through the landfill into ground water, ponds and mangrove lagoons, and the sea. Used oil has been classified as a "special waste" under Virgin Islands law in order for the Department of Public Works' (DPW) to conduct it's Used Oil Collection Program. DPW will accept used oil from the public in sealed containers in quantities of five (5) gallons or less at the following locations:

St. Croix:	DPW facilities in Anna's Hope, 8-5 weekdays.
St. John:	DPW facilities in Susannaberg or the Coral Bay Fire Station, 8-5 weekdays.
St. Thomas:	Bovoni Landfill, am - 6 pm every day or the Tutu Fire Station, 8-4 weekdays.

DPW **WILL NOT** accept used oil mixed with anti-freeze, solvents, paint, paint thinner, carburetor, or parts cleaner. To find out how to dispose of these and other hazardous wastes, contact the DPW Division of Environmental Services or DPNR-DEP. Petroleum products and other chemicals should be properly stored until they can safely be disposed of. Proper storage includes a secured container on an impervious surface at least 150 feet from drinking water supplies and surface waters.

3. DO YOU DISPOSE OF LEFTOVER OR BANNED PESTICIDES AND/OR PESTICIDE CONTAINERS ON YOUR PROPERTY?

Pesticides and pesticide containers, including those used for yard care, gardens, and indoor plants, can contaminate drinking water if not properly used, stored and/or discarded.



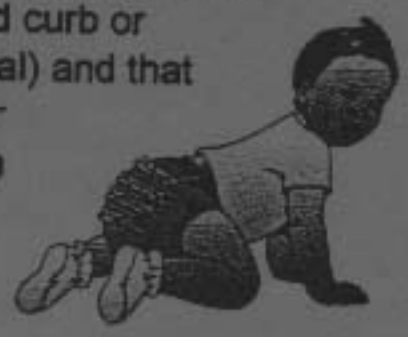
Keep all pesticides in a secured storage area or container with an impermeable surface (concrete, metal, heavy-duty plastic) at least 150 feet from your water supply system. Contact the V.I. Department of Agriculture or DPNR Division of Environmental Protection (DEP) for details on proper storage and disposal of all pesticides.

Special attention should be used when dealing with pesticides classified as "restricted use."

Old, unused and banned pesticides and their containers should not be disposed of on your property. They should be stored in a safe place until a collection site is organized for proper disposal. Contact your local DPNR-DEP, UVI Cooperative Extension Service (CES), or Department of Agriculture for more information.

4. ARE ANY OF THE HAZARDOUS PRODUCTS PREVIOUSLY MENTIONED STORED NEAR OUR WATER SUPPLY AND/OR PUMP ROOM, AND/OR ACCESSIBLE TO CHILDREN AND PETS?

Each year, hundreds of children and pets are injured or poisoned because of improperly stored hazardous household products. All household hazardous products and wastes need to be secured until they can be used or properly discarded. Household hazardous products and wastes should be stored away from your water supply and pump room (preferably in a detached storage shed). Make sure materials are stored in an area with secondary containment (a concrete pad and curb or some other impermeable material) and that there is no access for children or animals. Educate your family on the dangers of these products and on emergency procedures in case of spills or poisonings. You may also want to start using less toxic household products. For more information, contact UVI-CES.



5. HAS IT BEEN LONGER THAN ONE YEAR SINCE YOU UPDATED YOUR EMERGENCY RESPONSE PLAN (i.e. EMERGENCY PHONE NUMBERS, ESCAPE ROUTES, ETC.)?

All families should have an updated emergency response plan to handle hazardous material spills, chemical poisonings, and other emergencies. The plan should include: where hazardous products are stored, emergency response numbers, and finally, what to do in case of an accident. Contact DPNR-DEP, UVI-CES, or the Health Department to get more information on developing an emergency response plan.

For More Information

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at B142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

This document was published by the University of the Virgin Islands Cooperative Extension Service, Kwame Garcia, Director of Extension Programs. This document was developed by Julie Wright, Natural Resources Specialist, University of the Virgin Islands Cooperative Extension Service in cooperation with the National Farm*A*Syst/Home*A*syst Program, and is patterned in a large part after the National Farm*A*Syst/Home*A*Syst Program document "***Protecting Your Water Through A Farm & Home Assessment***" and the North Dakota Farm*A*Syst Program developed by North Dakota Extension Service. Contents of this publication constitute public property. No endorsement of products or firms is intended, nor is criticism implied of those not mentioned. Issued by the Virgin Islands Cooperative Extension Service and the U.S. Department of Agriculture in furtherance of the acts of May 8 and June 30, 1914. Extension programs and policies are consistent with federal and state laws and regulations on non-discrimination regarding race, color, national origin, religion, gender, age, disability or gender preference.

The Farm*A*Syst/Home*A*Syst Program is funded nationally by: USDA Cooperative State Research, Education and Extension Services, USDA Natural Resources Conservation Service, and the U.S. Environmental Protection Agency. The program supports voluntary pollution prevention to protect surface and ground water through a partnership with governmental agencies and the private sector.

Assessing Your Household Hazardous Waste Management Practices

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Questions 1,2,3	Inventory all household hazardous waste, pesticides, and containers on your property.	UVI Cooperative Extension Service (CES), Department of Public Works (DPW), Department of Agriculture (DOA), or DPNR Division of Environmental Protection (DEP).		
Question 4	Develop a secured storage area.	UVI-CES, DPNR-DEP, DOA.		
Question 5	Develop an emergency response plan.	UVI-CES, DPNR-DEP, or Health Department.		

PHONE NUMBERS:
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
DPNR-DEP: 773-0565 (St. Croix); 777-4577 (St. Thomas - St. John)
DOA: 778-0997 (St. Croix); 774-5182 (St. Thomas - St. John)
Health Department: 773-1311 (St. Croix); 774-6880 (St. Thomas - St. John)
DPW: 773-1290 (St. Croix); 776-4844 (St. Thomas)

ASSESSING YOUR LIVESTOCK AND POULTRY OPERATIONS

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

Livestock and poultry operations on your property can generate large amounts of manure. This manure can serve as a valuable fertilizer resource — incorporating animal manure into the soil provides nutrients and improves texture. However, when not managed properly, manure can contaminate surface and ground water with bacteria, other micro-organisms and nutrients. When livestock manure is concentrated, as it is in barnyards, animal holding areas, or feedlots, the risk of polluting surface and ground waters often increases.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing Your Livestock and Poultry Operations** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

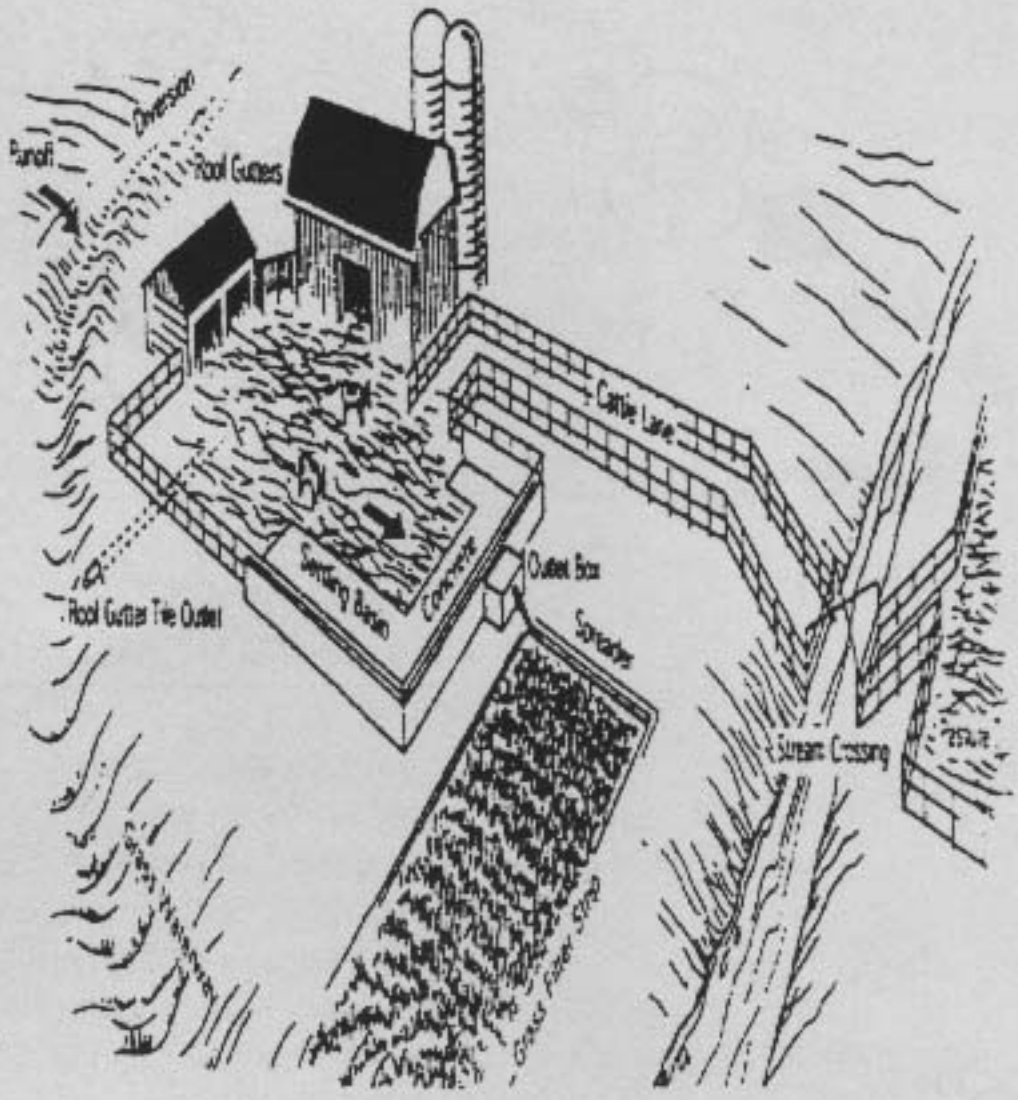
USDA Natural Resources Conservation Service

1. DO YOU HAVE LIVESTOCK AND/OR POULTRY ON YOUR PROPERTY?

Livestock and poultry farms can pollute surface and ground waters with bacteria, other micro-organisms and nutrients.

Proper use of manures in gardens or on fields can reduce fertilizer purchases, improve soil quality, and reduce pollution risks.

If you do not have a manure management plan for your livestock or poultry operation, contact the VI Department of Agriculture, USDA Natural Resources Conservation Service (NRCS), VI Conservation District, or Cooperative Extension Service.



2. DO YOU HOUSE LIVESTOCK AND/OR POULTRY WITHIN 100 FEET OF A WATER SUPPLY SYSTEM (WELL OR CISTERN) OR WATER BODY?

All livestock operations should be located at least 100 feet downhill from private water supplies (including abandoned wells) and 500 feet from public water supply systems.

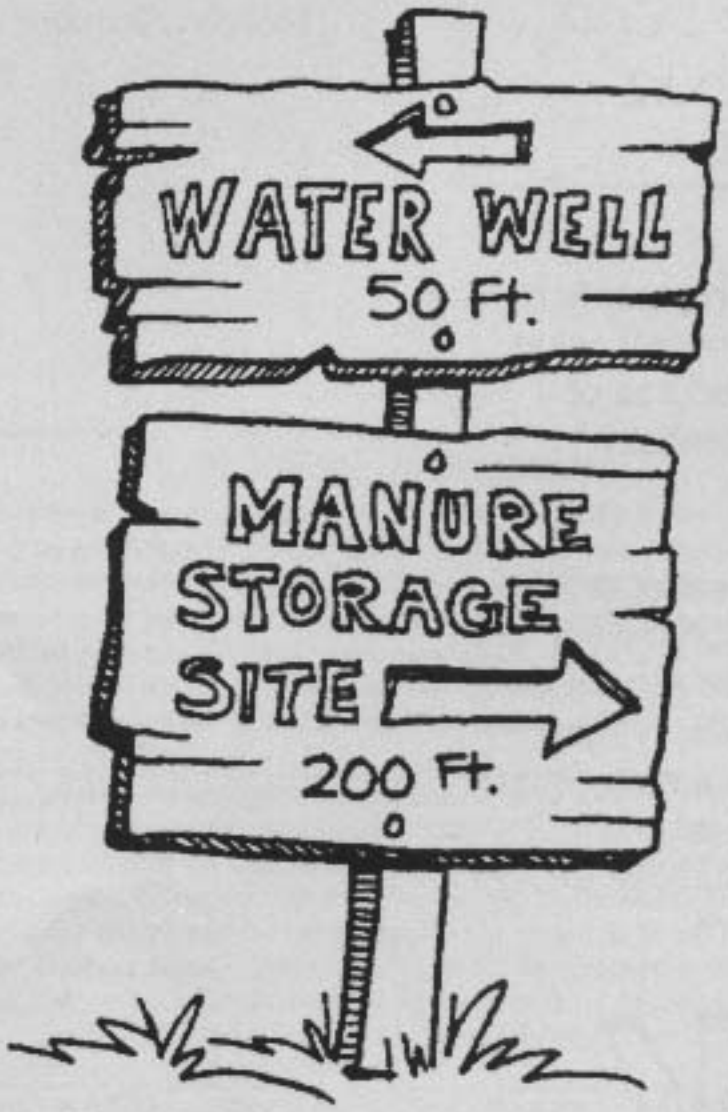
If you have a livestock operation on your property you should be testing your water annually for bacteria and nitrate.

3. DO YOU STORE MANURE WITHIN 250 FEET OF A WATER SUPPLY SYSTEM (WELL OR CISTERN) OR WATER BODY?

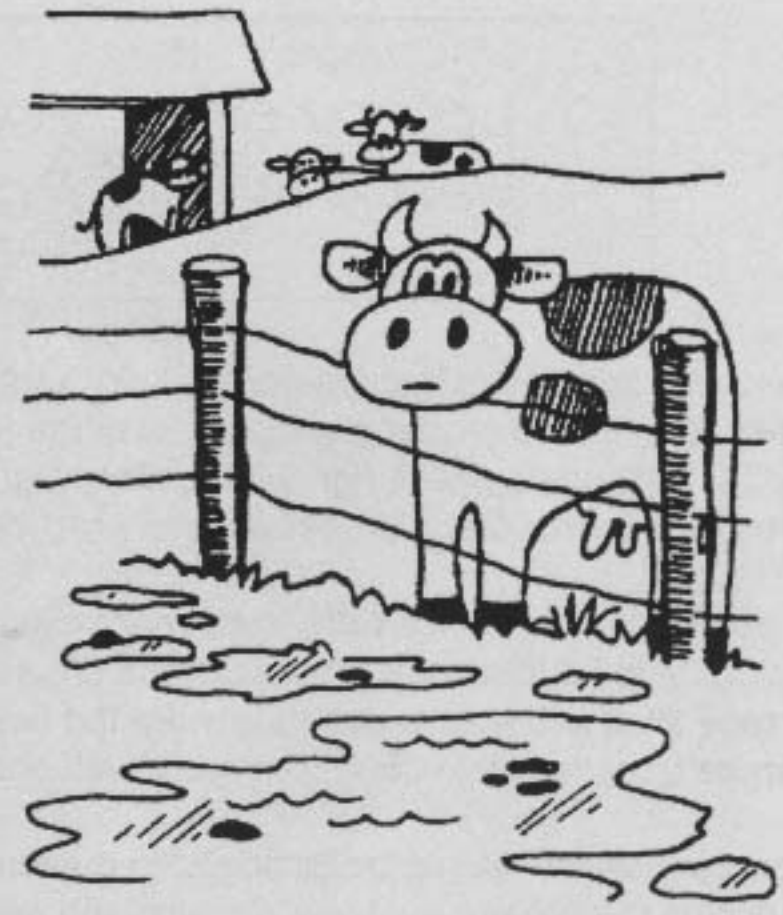
Manure is generally stored in either liquid, semi-solid or solid form. Each of these can be stored safely, but require proper management to prevent water contamination. Contact the USDA-NRCS, VI Department of Agriculture, Cooperative Extension Service, or VI Conservation District office for information on proper storage practices.

Of particular concern for water quality are existing wells that can provide a direct path for contaminated surface water to reach the ground water. Long distances between manure storage sites and your water supply are the best preventive measure that can be taken. Avoid manure storage within 250 feet of your well or cistern.

Storage facilities should be designed to prevent unplanned off-site movement of manure. Reducing the volume of stored manure with regular use of manure as a fertilizer can help to reduce pollution risks.



4. IS YOUR LIVESTOCK AND/OR POULTRY FACILITY LOCATED UP HILL FROM A WATER SUPPLY SYSTEM (WELL OR CISTERN) OR WATER BODY?

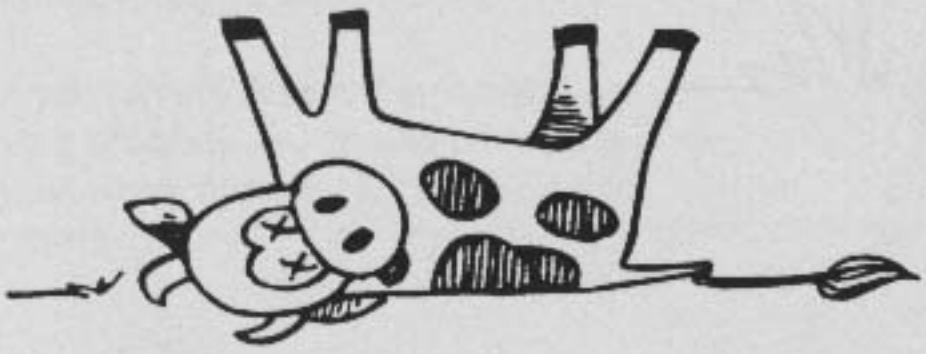


Runoff from livestock areas can transport animal manure to surface or ground waters and cause water contamination. Runoff is affected by slope, rainfall and maintenance of the animal facility. Your animal facility should be located downhill from your water supply so that runoff will not drain toward the water supply. Surface water runoff should be diverted around the animal facility so that it does not become contaminated with manure.

5. DO YOU BURY DEAD ANIMALS ON YOUR PROPERTY?

Dead animal disposal on your property is a potential water pollution risk. Decomposing animals can be a concentrated source of nutrients, bacteria and other potentially harmful micro-organisms.

Develop a plan for proper disposal of dead animals. Small animals can be best disposed of by composting. A rendering service is generally better for larger animals. Virgin Islands law requires that dead animals either be disposed of on your property or in a sanitary landfill. It is **illegal** to dispose of dead animals in public dumpsters.



6. DO YOU SPREAD MANURE ON YOUR LAWNS, GARDENS AND/OR FIELDS WITHOUT ADDING IT INTO YOUR NUTRIENT MANAGEMENT PLAN?

Manure should be treated as a resource rather than a waste product. Store manure in an approved storage system until it can be used to provide nutrients for your garden or crops. Credit nutrients from all manures in your nutrient management plan. Manure nutrient content can be estimated or tested. Contact the VI Department of Agriculture, USDA-NRCS, or UVI Cooperative Extension Service for further information.

Apply all manure with properly calibrated equipment. Make sure you maintain records of your manure applications.

FOR MORE INFORMATION

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at B142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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Assessing Your Livestock & Poultry Operations

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Question 1,6	Develop a manure management plan that treats manure as a resource.	UVI Cooperative Extension Service (CES), VI Dept. of Agriculture (DOA), USDA-NRCS, VI Conservation District, or crop consultant.		
Question 2	Test your water for nitrate and bacteria contamination. Move livestock area if possible.	DPNR Division of Environmental Protection, Dept. of Health, or UVI Water Resources Research Institute.		
Question 3	Use an approved manure storage system.	UVI-CES, DOA, USDA-NRCS, or VICD.		
Question 4	Develop a runoff control system or move the feed yard.	UVI-CES, DOA, USDA-NRCS, or VICD.		
Question 5	Develop a dead animal disposal system.	UVI-CES, DOA, USDA-NRCS, or VICD.		

PHONE NUMBERS:

DOA: 778-0997 (St. Croix); 774-5182 (St. Thomas - St. John)
DPNR-DEP: 773-0565 (St. Croix); 777-4577 (St. Thomas - St. John)
Health Dept.: 773-1311 (St. Croix); 774-6880 (St. Thomas - St. John)
USDA-NRCS: 778-8699
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
UVI-WRRI: 693-1063
VICD: 778-9838

ASSESSING YOUR FERTILIZER STORAGE & HANDLING PRACTICES

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

Fertilizers play an important role in gardening and agriculture. They increase crop production dramatically. However, when commercial fertilizers are applied to gardens, fields, and lawns they can pollute both ground and surface waters with nitrate. The other primary elements of commercial fertilizer, phosphorus and potassium, are not usually a threat to ground water, but can harm surface water quality.

The public health standard for the maximum allowable amount of nitrate-nitrogen in drinking water is 10 milligrams nitrate per liter of water (mg/l, equivalent to parts per million for water measurement). Nitrate levels exceeding this standard have been found in many wells in the United States. High nitrate levels can be a risk to infants, causing "blue-baby disease" (methemoglobinemia).

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing Your Fertilizer Storage and Handling Practices** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

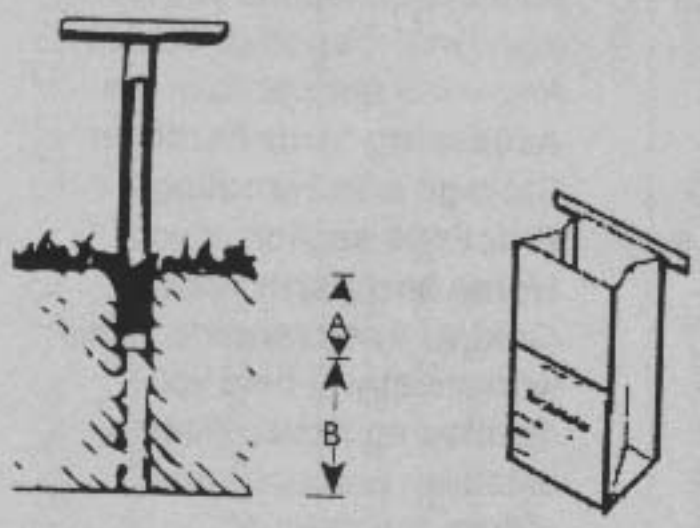
UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. HAS IT BEEN A LONG TIME (OVER THREE YEARS) SINCE YOU TESTED YOUR SOILS NUTRIENT CONTENT (IN GARDENS, LAWNS, AND/OR FIELDS)?

A key first step in any nutrient plan is to identify existing levels of soil nutrients. This will help you determine how much fertilizer you need to add to your garden, lawn or field for optimum plant growth. You should test your soil at least once every three years and maintain a record of previous soil tests for each area. If you use a more intensive cropping system such as double cropping, you may want to consider testing every year. Contact your local UVI Cooperative Extension Service office for information on testing your soils' nutrient content.



(A) Top 2 in.
(B) Unmixed

2. IS YOUR SOIL SANDY OR GRAVELLY (DOES YOUR SOIL DRAIN QUICKLY)?

Coarse textured soils such as sands are more vulnerable to ground water contamination. Sandy soils have larger pore spaces between soil particles. Thus water soaks in and travels through the soil quickly increasing the risk of contaminating ground water.

Finer textured soils such as silt loams and clays slow water movement and provide greater filtering. They act as a natural filter, allowing bacteria and other soil organisms to break down contaminants before they reach ground water. However, these types of soils pond more quickly, creating more surface water runoff that may contaminate surface water bodies (guts, ponds, coastal waters).

Soils with high organic matter content also help to reduce risk to ground water.

If you do not know what soil types are on your property, contact your local Natural Resource Conservation Service (NRCS) office, Conservation District office, or Cooperative Extension Service to get a detailed soils map. Manage your soil testing and nutrient applications by soil types. Keep accurate records of fertilizer applications by soil type for each plant/crop and for each garden/field.

3. DO YOU APPLY ANIMAL MANURE AND/OR CROP RESIDUES TO YOUR GARDENS, LAWNS, AND/OR FIELDS?

Consider all sources of applied nutrients in determining how much fertilizer to apply. If you are applying animal manure or are incorporating residues from a previous planting or crop you will need to adjust your current nutrient budgets to include these inputs. Organic matter and previous crop residues will affect nutrient availability. See your local Cooperative Extension Service office, NRCS, Conservation District, or crop consultant to adjust for these inputs.

4. ARE YOU UNSURE OF THE NUTRIENT CONTENT OF THE ANIMAL MANURE YOU APPLY?

Manure can provide all or a large portion of your crop's nutrient needs. Be sure to credit nutrients from all manure applications (from this year as well as previous years) in nutrient budgets. Store manure in a facility that will prevent contamination to both ground and surface water.

Use accurate testing to determine the nutrient content of your manure. Monitor manure for changes in nutrient content when emptying storage facilities. Be sure manure application equipment is calibrated and functioning properly.

5. DO YOU MAKE FERTILIZER APPLICATIONS BASED ON MAXIMUM (HYPOTHETICAL) GARDEN OR CROP YIELDS RATHER THAN HISTORICAL OR ACTUAL YIELDS?

Use realistic yield goals. Yield estimates that are too high will result in soil nutrient levels beyond those needed by the plants and could result in excess nutrients polluting ground and surface waters.

Do not base nutrient recommendations on yields greater than 10-20 percent above the average crop yield from the last three years. Keep accurate records.

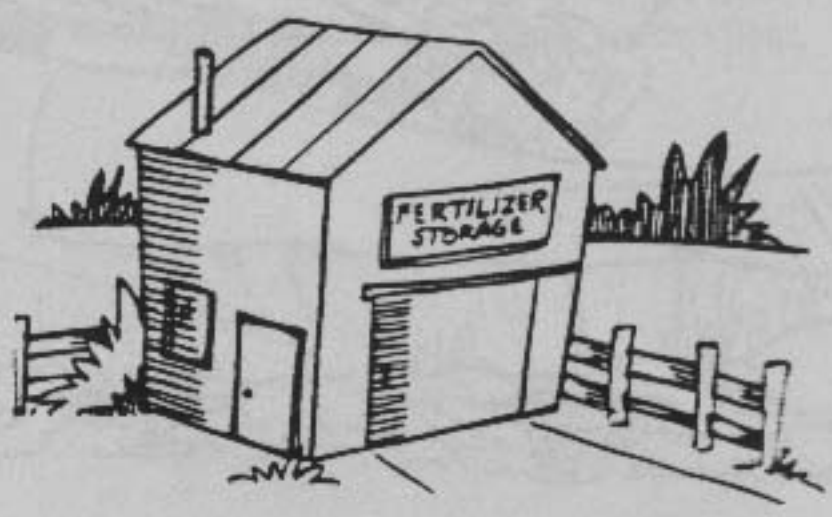
6. DO YOU APPLY ALL THE FERTILIZER NEEDED BY THE GARDEN, CROP OR LANDSCAPE FOR THE WHOLE GROWING SEASON ALL AT ONE TIME?

Whenever possible, time your fertilizer applications to fit crop needs. Apply fertilizer when the plants are actively growing. Use split applications of nitrogen on sandy soils. Keep accurate records of all fertilizer applications.

7. DO YOU STORE FERTILIZER PRODUCTS ON YOUR PROPERTY?

If stored properly in a secure location, fertilizers pose little danger to ground water or surface water. Small quantities (plant food) should be stored in a well-sealed container in a dry area secure from children and pets (such as a shed). Fertilizers should **not** be stored near your cistern or the pump for your drinking water. Since synthetic fertilizers are made from petroleum products as are plastics, place small packages in a glass or other impervious container (not plastic).

Large quantities of liquid fertilizers used for farming or landscaping should be stored on an impermeable floor such as concrete. The floor should have a curb that will hold up to 125% of the volume stored in case of a spill. A concrete mixing and loading pad with secondary containment should be provided for all liquid fertilizers. Dry bulk fertilizer piles should be stored on an impermeable surface under cover or in a building. Treat a fertilizer mixed with a pesticide as a pesticide. Locate fertilizer storage areas at least 100 feet downhill from your water supply. Be sure all fertilizer storage is secure from children, animals and vandalism.



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8. HAS IT BEEN LONGER THAN ONE YEAR SINCE YOU UPDATED YOUR NUTRIENT MANAGEMENT PLAN?

If you over-fertilize your garden, lawns, or fields you are potentially impacting the water quality in your area. If you do not have a detailed nutrient management plan, you need to develop one. This plan will specify the amount of nutrients your plants or crop need to thrive. The plan should be realistic and include all potential sources of nutrients (including animal manure and plant residues) that your garden, crop or lawn will need for the entire growing season. It should also provide information on your soils' nutrient content.

For More Information

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at 8142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

This document was published by the University of the Virgin Islands Cooperative Extension Service, Kwame Garcia, Director of Extension Programs. This document was developed by Julie Wright, Natural Resources Specialist, University of the Virgin Islands Cooperative Extension Service in cooperation with the National Farm*A*Syst/Home*A*syst Program, and is patterned in a large part after the National Farm*A*Syst/Home*A*Syst Program document "*Protecting Your Water Through A Farm & Home Assessment*" and the North Dakota Farm*A*Syst Program developed by North Dakota Extension Service. Contents of this publication constitute public property. No endorsement of products or firms is intended, nor is criticism implied of those not mentioned. Issued by the Virgin Islands Cooperative Extension Service and the U.S. Department of Agriculture in furtherance of the acts of May 8 and June 30, 1914. Extension programs and policies are consistent with federal and state laws and regulations on non-discrimination regarding race, color, national origin, religion, gender, age, disability or gender preference.

The Farm*A*Syst/Home*A*Syst Program is funded nationally by: USDA Cooperative State Research, Education and Extension Services, USDA Natural Resources Conservation Service, and the U.S. Environmental Protection Agency. The program supports voluntary pollution prevention to protect surface and ground water through a partnership with governmental agencies and the private sector.

Assessing Your Fertilizer Storage and Handling Practices

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Question 1	Test your soils at least every 3 years.	UVI Cooperative Extension Service (CES), Dept. of Agriculture (DOA), or crop consultant.		
Question 2	Get a detailed soils map of your fields.	USDA-NRCS or UVI-CES.		
Question 3,4	Test your manure. Credit all nutrient sources.	UVI-CES, USDA-NRCS, or V.I. Conservation District (VICD), or crop consultant.		
Question 5,6	Use realistic crop yield goals. Apply fertilizer based on crop needs.	UVI-CES, USDA-NRCS, DOA, VICD or crop consultant.		
Question 7	Develop an approved fertilizer storage system.	UVI-CES, USDA-NRCS, DOA, or VICD.		
Question 8	Develop a nutrient management plan.	UVI-CES, USDA-NRCS, DOA, VICD or crop consultant.		

Phone Numbers:
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
USDA-NRCS: 778-8699
DOA: 778-0997 (St. Croix); 774-5182 (St. Thomas - St. John)
VICD: 778-9838

ASSESSING YOUR PESTICIDE STORAGE & HANDLING PRACTICES

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

WHY SHOULD YOU BE CONCERNED?

Pesticides play an important role in gardens and on farms, eliminating unwanted weeds and insects.

However, pesticides must be stored and handled safely to protect both people and water quality. Two major areas of concern related to pesticides are (1) storage practices and (2) handling practices, including mixing, loading, application, and disposal.

Pesticides work by interfering with the life processes of weeds and insects. Some pesticides can also interfere with human life processes (be toxic to humans).

Pesticides are usually not present in water supplies in concentrations high enough to cause acute health effects such as chemical burns, nausea and convulsions. Instead, they typically occur in very small amounts, but can cause chronic health problems (such as cancer, birth defects, etc.) from prolonged exposure.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing Your Pesticide Storage and Handling Practices** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce the risks of contamination to your drinking water supply.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

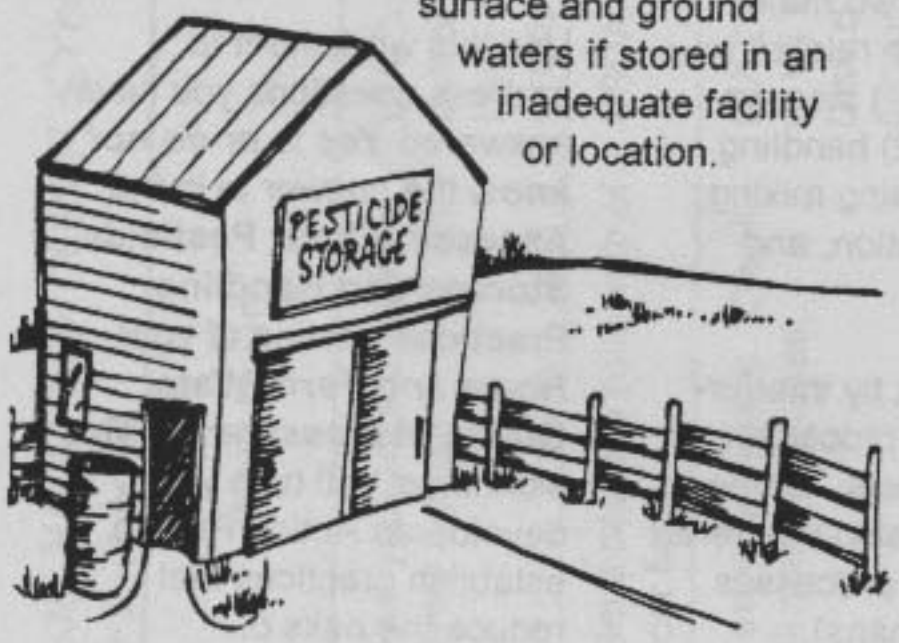
VI Resource Conservation and Development Council, Inc.

USDA Natural Resources Conservation Service

1. DO YOU USE OR STORE PESTICIDES ON YOUR PROPERTY?

Before you make a decision about storing pesticides, you need to balance cost, expected use, and risks associated with storing pesticides. Risks associated with storing pesticides include leaking containers, inadequately protected storage sites, and disposal of unwanted or unusable pesticides. You can safely store pesticides in small quantities (such as weed-killer, bug spray, flea and tick removal products, etc.) by keeping them in their original container in a dry, secure area, out of reach of children and pets.

Even in large quantities, pesticides can be stored without threat to water quality. On the other hand, relatively small amounts of chemicals may pose a significant hazard to surface and ground waters if stored in an inadequate facility or location.



The storage facility should be located downhill from your water supply and other sensitive areas. If you store pesticides on a regular basis, you should consider building a properly designed storage system with a concrete floor, secondary containment, and a temperature and humidity-controlled environment. In all cases, make sure your pesticides are protected from vandalism and secured from children and animals.

2. DO YOU MIX, APPLY, OR STORE PESTICIDES WITHOUT READING THE LABEL FIRST?

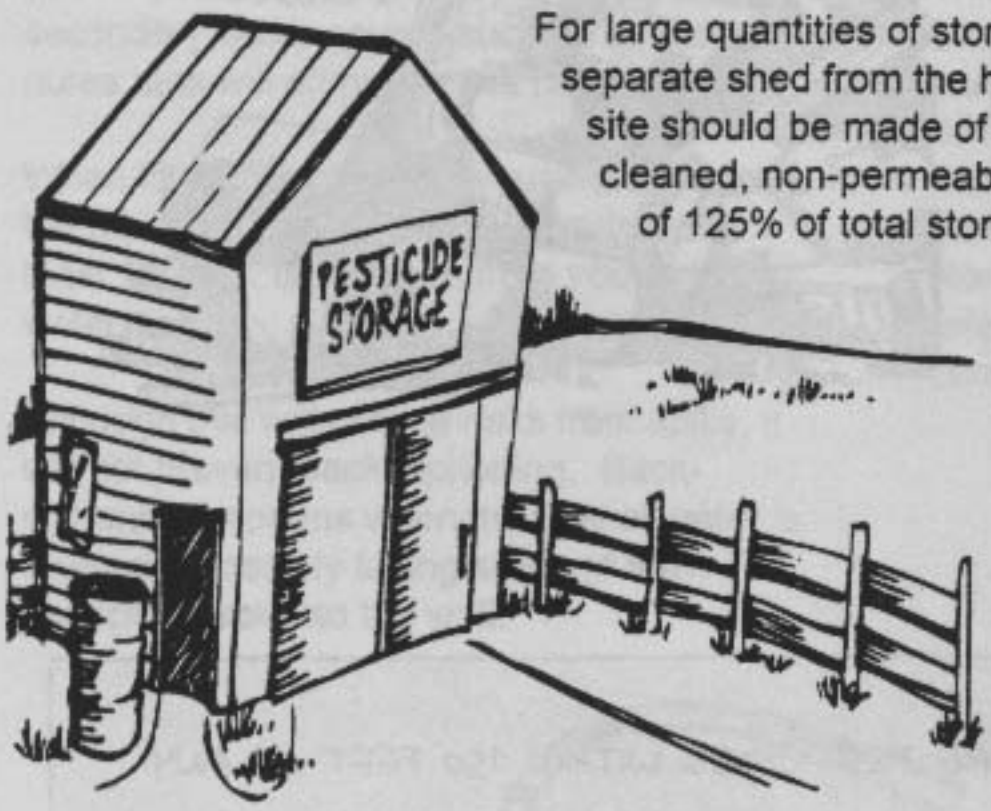
Before buying, storing, or applying any kind of pesticide, read the label to make sure the product will do what you want it to do. Be sure it can be applied safely and that you have all the necessary safety equipment.

Always follow the instructions on the label for proper use and storage of the product. The label also provides additional information such as the re-entry period (how long you must keep people and animals out of the building, yard, or field), first aid, and other hazards.

3. Are your pesticides stored on wood, gravel, soil, or on a concrete pad without a curb?

Containment is very important in the event of an accidental spill, especially if you store large quantities of pesticides for landscaping or farming use.

Small quantities of pesticides should be stored in a dry area, inside a second container such as a metal or heavy-duty plastic bucket or tub that can hold the quantity of pesticide stored should the original container leak. Pesticides should be stored in an area secure from children and pets.



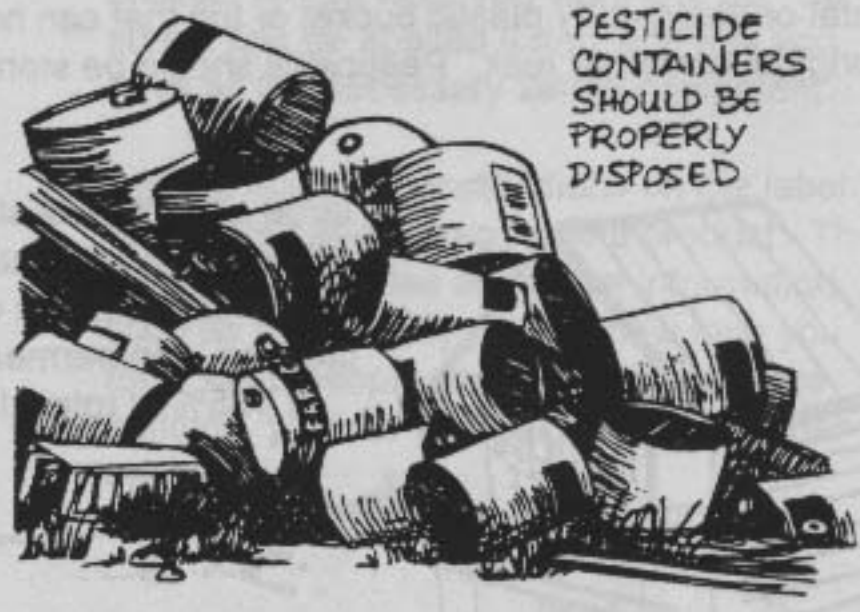
For large quantities of stored pesticides, they should be kept in a separate shed from the home. The floor of the pesticide storage site should be made of sealed concrete or some other easily cleaned, non-permeable material and should hold a minimum of 125% of total stored volume. Carpeting, wood, soil, and other absorbent floors should not be used because they are difficult or impossible to decontaminate in the case of a leak or spill.

For easier clean-up, shelving and pallets should be made of non-absorbent material such as plastic or metal. If wood or fiberboard materials are used, they should be coated or covered with plastic, polyurethane or epoxy paint.

4. DO YOU HAVE PESTICIDE CONTAINERS THAT ARE DAMAGED, LEAKING AND/OR RUSTING?

A major concern about the condition of pesticide containers is the potential for leaks and spills. If you have containers that are rusting or have holes or tears, the pesticide should be used or disposed of immediately. You should monitor your pesticide storage area for leaks.

Be careful to keep all pesticides in their original containers with their proper labels. Information on the pesticide label is invaluable for proper cleanup, disposal, and emergency action if the pesticide is spilled or leaked. Information about pesticide disposal programs for old and unused pesticides can be obtained from the UVI Cooperative Extension Service, VI Department of Agriculture, DPW Division of Environmental Services, or DPNR Division of Environmental Protection.



5. DO YOU MIX, APPLY OR STORE PESTICIDES WITHIN 150 FEET OF ANY WATER SUPPLY SYSTEM (WELL OR CISTERN) OR SURFACE WATER?

Mixing, loading, storing, or applying pesticides near or directly uphill from your water supply system is not recommended. Use a secondary water source on a properly constructed mixing and loading pad; or field mix and load with a nurse tank to reduce risks. Pesticides should always be stored in a secured, spill-proof area or facility away from your water supply's pump room, or for large quantities, downhill from your water supply.

Pesticides should also be mixed, applied and stored away from surface waters to prevent contamination from spills or leaks.

6. Do you fill your sprayer container or tank directly from a drinking water supply system?

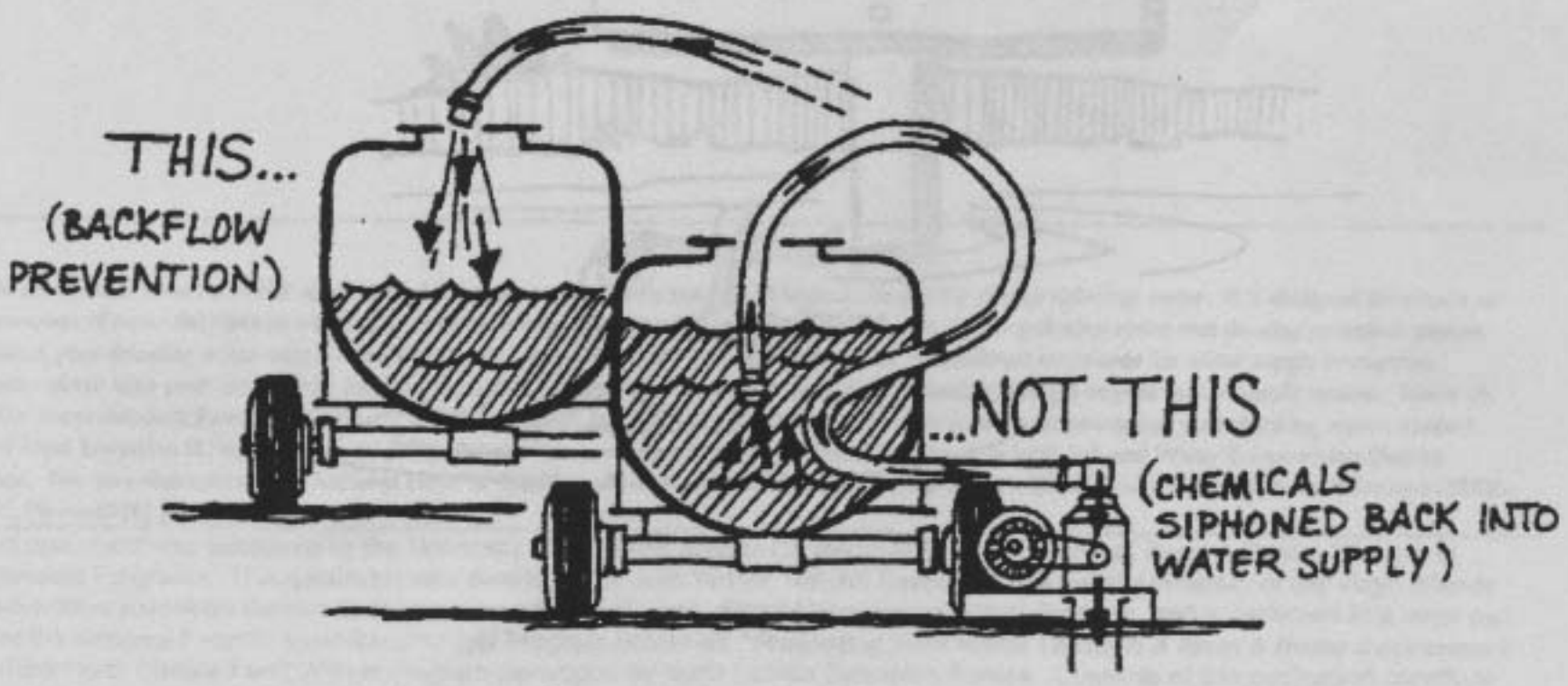
Filling your sprayer directly from your drinking water supply system is not recommended. Your drinking water supply has a greatly increased chance of being contaminated if you fill your sprayer directly from it. Using a secondary water source such as a holding or nurse tank will eliminate this risk.

When filling directly from your water supply, the mixing and loading area should be at least 150 feet downslope from your drinking water supply.

Although this will reduce risks from spills, it will not prevent back-siphoning. Back-siphoning happens when the flow of water is reversed, possibly taking some of the pesticide back into the well.

7. Do you fill your sprayer container or tank with a hose that does not have a check valve or put the hose in the tank so that it is below the water line during filling?

Always keep your water hose or pipe raised **ABOVE** the level of the pesticide mixture. This will prevent water and pesticides from being drawn back into your water supply if the pump fails or is shut off. A back-siphoning device or check valve should always be used when filling with a pesticide tank. These can be found at a farm supply store, hardware store, or irrigation supply outlet. They are relatively inexpensive and reduce the risk of contamination to your drinking water supply.

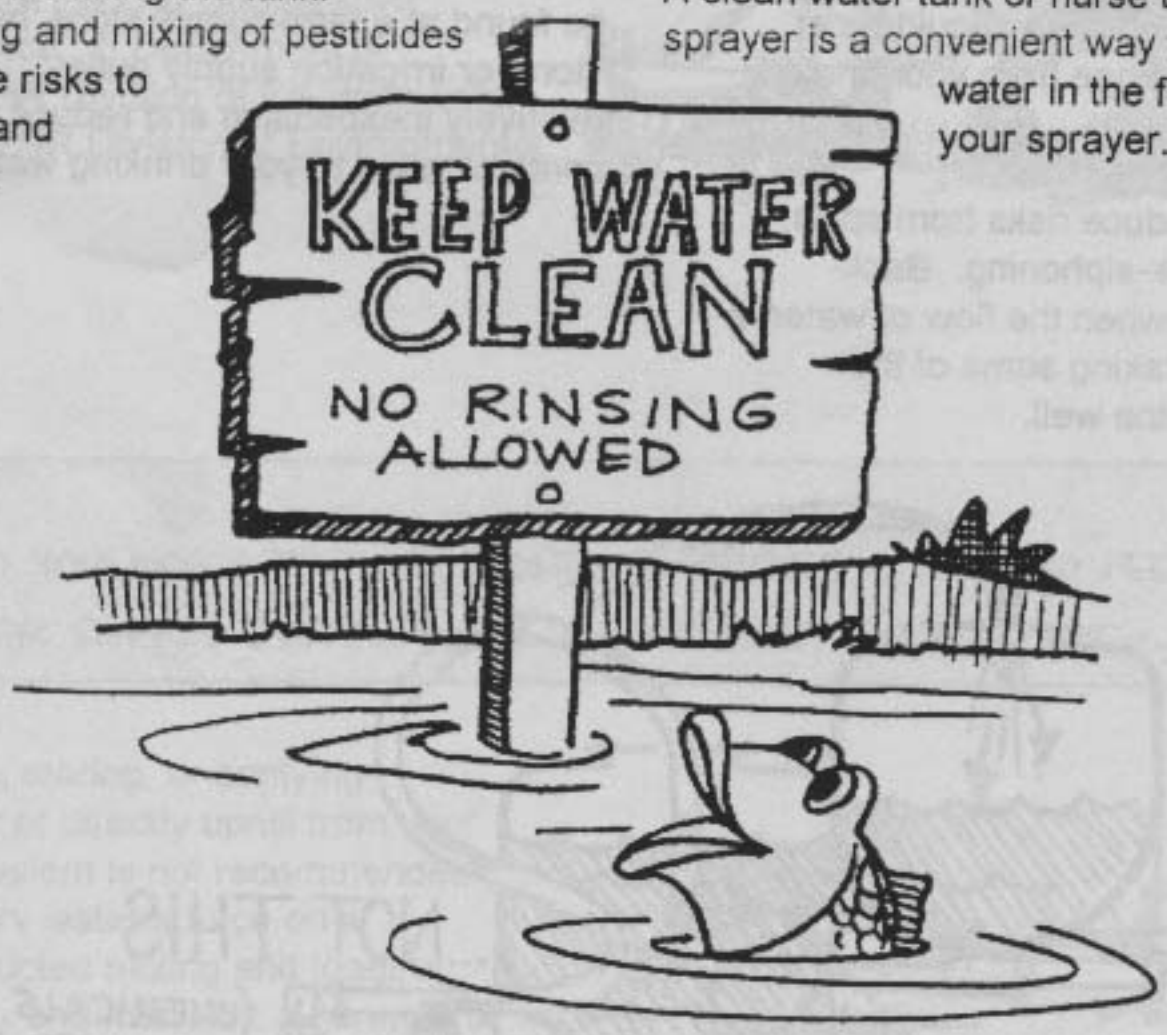


8. DO YOU LEAVE YOUR SPRAYER CONTAINER OR TANK UNATTENDED WHILE FILLING?

You are responsible for the proper mixing and loading of all the pesticides you use. When a sprayer tank is left unattended, the risk of contamination from spills or over filling increases. Repeated pesticide spills due to tank overflow allows pesticides to concentrate in the soil and increases their potential to move into surface or ground waters. There is also a risk of back-siphoning pesticides directly into the water source if the pump should stop while filling the tank.
Careful loading and mixing of pesticides will reduce the risks to water quality and human health.

9. DO YOU RINSE OUT YOUR SPRAYER CONTAINER OR TANK NEAR YOUR WATER SUPPLY SYSTEM (WELL OR CISTERN) OR A WATER BODY?

After pesticide applications, clean all equipment used. Cleaning should be done away from your drinking water supply system and surface water bodies (guts, ponds, coastal waters). The rinse water should be used in the next spray mix or it should be applied to the field you just finished spraying. A clean water tank or nurse tank on the sprayer is a convenient way to have clean water in the field to wash out your sprayer.



10. Do you apply pesticides without recalibrating your sprayer?

The use of calibrated equipment can be as important as the selection of the pesticide you are applying. Calibrating your equipment will reduce problems such as drift, non-uniform coverage, failure of the pesticide to reach a targeted organism, and exposure to non-target organisms.

Before calibrating your sprayer, make sure your equipment can apply the product according to the label rate. Each spray nozzle should handle within 5 percent of volumes required. Proper calibration of appropriate equipment ensures that pesticides are applied uniformly according to label rates.

11. Has it been longer than five years since you attended a pesticide applicator training course or workshop?

The Virgin Islands has regulations requiring an applicator to be trained and licensed in order to apply restricted use pesticides. **ALL** commercial pesticide applicators **must** be certified. Private individuals applying **restricted use** pesticides must also be certified. Certifications (both commercial and private) are only valid for 4 years, then applicators must become re-certified.

However, if you are applying **any** pesticides, you should consider taking an applicator training course and obtaining your certification. Contact your local Cooperative Extension Service for information on classes to become a certified pesticide applicator.

For More Information

This assessment does not cover all potential risks on your property that could impact the quality of your drinking water. It is designed to: create an awareness of potential risks to water quality on your property; provide voluntary solutions to reduce pollution risks; and develop an action plan to protect your drinking water supply. Individual areas and states may vary in requirements on minimum standards for water supply protection. Always check with your local offices listed in the reference section of each worksheet before making changes to your water supply system. There are other, more detailed, Farm*A*Syst/Home*A*Syst programs available. If you have specific questions about protecting your drinking water, contact your local Extension Service Office, local USDA Natural Resources Conservation Service Office, or your local Soil and Water Conservation District Office. You may also contact the National Farm*A*Syst/Home*A*Syst Office at 8142 Steenbock Library, 550 Babcock Drive, Madison, Wisconsin 53706-1293, Phone (608) 262-0024.

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Assessing Your Pesticide Storage and Handling Practices

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Question 1	Always read the label.	VI Department of Agriculture (DOA), UVI Cooperative Extension Service (CES), or crop consultant.		
Question 2	Assess type and quantity of pesticide to be stored.	UVI-CES, DOA, USDA-NRCS, or Conservation District office (VICD).		
Questions 3,4	Develop a pesticide storage and handling plan. Dispose of unused products according to label instructions.	UVI-CES, DOA, USDA-NRCS, or Conservation District office (VICD).		
Questions 5,6,7,8,9	Try not to fill pesticide sprayer directly from drinking water supply (well or cistern). Use a hydrant (located at least 150 feet from water supply), or a water holding tank.	UVI-CES, DOA, local farm or hardware store.		
Question 10	Make sure your fill hose has a backflow device and is not below the water tank level. Get pesticide applicator training and become certified. Always read pesticide label. Spread rinse water on crop field or lawn. Check your equipment on a regular basis. Always calibrate sprayer prior to applying pesticides. Never leave spray tank unattended.	UVI-CES or private crop consultant for calibration training. UVI-CES.		

PHONE NUMBERS:
DOA: 778-0997 (St. Croix); 774-5182 (St. Thomas - St. John)
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)
USDA-NRCS: 778-8699
VICD: 778-9838

PROTECTING YOUR WATER QUALITY THROUGH A HOME & FARM ASSESSMENT

ASSESSING YOUR PETROLEUM PRODUCT STORAGE FACILITIES

WHY SHOULD YOU BE CONCERNED?

Storage of petroleum products such as motor fuel and oil present a threat to public health and water quality.

According to estimates by the U.S. Environmental Protection Agency, nearly 1 out of every 4 petroleum underground storage tanks in the United States may now be leaking.

A few quarts of gasoline in the ground water may be enough to severely pollute your drinking water supply, as well as your neighbors'. Low levels of petroleum chemicals in water cannot be detected by smell or taste; yet the seemingly pure water may be contaminated to the point of harming human health.

Petroleum fuels contain many potentially toxic compounds such as ethylene dibromide (EDB) and benzene. EDB is a carcinogen (cancer-causing agent) in laboratory animals, and benzene is considered a human carcinogen. Once these contaminants leak into the soil and ground water they can be very difficult and expensive to remove.

WHAT CAN YOU DO?

Use this worksheet to address questions you have answered ***Yes*** to or ***do not know*** the answer to in the **Assessing Your Petroleum Product Storage Facilities** section of your ***Home and Farm Water Quality Assessment***. This worksheet will help you develop an Action Plan to establish practices that reduce drinking water supply contamination risks.

A PARTNERSHIP PROGRAM FOR VOLUNTARY POLLUTION PREVENTION

UVI Cooperative Extension Service

VI Resource Conservation and Development Council, Inc.

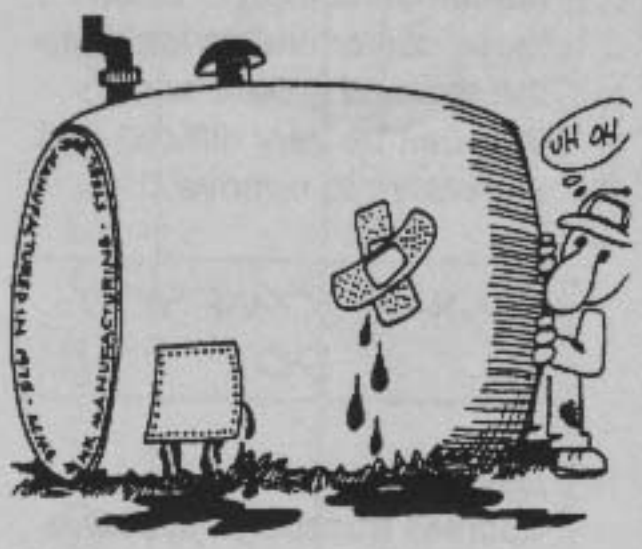
USDA Natural Resources Conservation Service

1. DO YOU HAVE A PETROLEUM STORAGE CONTAINER(S) OR TANK(S) ON YOUR PROPERTY?

Assessment surveys from **Farm*A*Syst** (Farm Water Quality Assessment) Programs across the country have shown petroleum storage to be the most frequent high risk identified. If you have a petroleum storage container or tank on your property, or if you have waste oil to discard from car or generator maintenance, you need to assess your storage and disposal methods to guard against contamination of soil, ground and surface water.

Containers or tanks that are no longer in use should be removed from the property. The Virgin Islands uses Federal regulations regarding the removal of buried and above ground petroleum storage tanks. Consult with the DPNR Division of Environmental Protection (DEP) before you dispose of storage containers, modify your current system, or remove a petroleum storage tank.

Waste oil is classified as a "special waste" in the Virgin Islands (in order for WAPA to be allowed to burn it along with standard oil). Waste oil contains toxic chemicals, cancer-causing hydrocarbons, and heavy metals (lead, zinc, arsenic, chromium, cadmium) that are harmful to human health and the environment. Dumping of used (or waste) oil in storm drains, guts or on the ground pollutes our beaches, surface and ground waters. Used oil in the garbage seeps through landfills into ground water, mangrove lagoons, and the sea.



Small quantities of used oil (5 gallons or less) generated by individuals changing oil in their vehicles or generators will be accepted by the Department of Public Works' (DPW) **Used Oil Collection Program**. DPW will **NOT** accept used oil in containers greater than five gallons or from businesses. Businesses that generate waste oil must have it collected and transported to an EPA-approved disposal site by an approved waste oil hauler.

DPW **WILL** accept used oil in sealed containers (5 gallons or less) at the following locations:

St. Croix:	DPW facilities in Anna's Hope, 8 am - 5 pm weekdays.
St. John:	DPW facilities in Susannaberg or the Coral Bay Fire Station, 8 am - 5 pm weekdays.
St. Thomas:	Bovoni Landfill, 6 am - 6 pm every day, or the Tutu Fire Station, 8 am - 4 pm weekdays.

DPW may add collection locations to make proper disposal of used oil easier for the public. To find out about additional locations, contact DPW Division of Environmental Services or the UVI Cooperative Extension Service.

DPW **WILL NOT** accept waste oil mixed with anti-freeze, solvents, paint, paint thinner, carburetor or parts cleaner. To find out how to dispose of these other products, contact the DPW Division of Environmental Services or DPNR Division of Environmental Protection (DEP). Petroleum products should be properly stored in a dry area safe from access by children or pets. Proper storage includes a secured container on an impervious surface at least 100 feet away from your drinking water supply (including pump room) and surface waters.

2. IS YOUR PETROLEUM STORAGE CONTAINER(S) OR TANK(S) LESS THAN 100 FEET FROM A WATER SUPPLY OR WATERBODY?

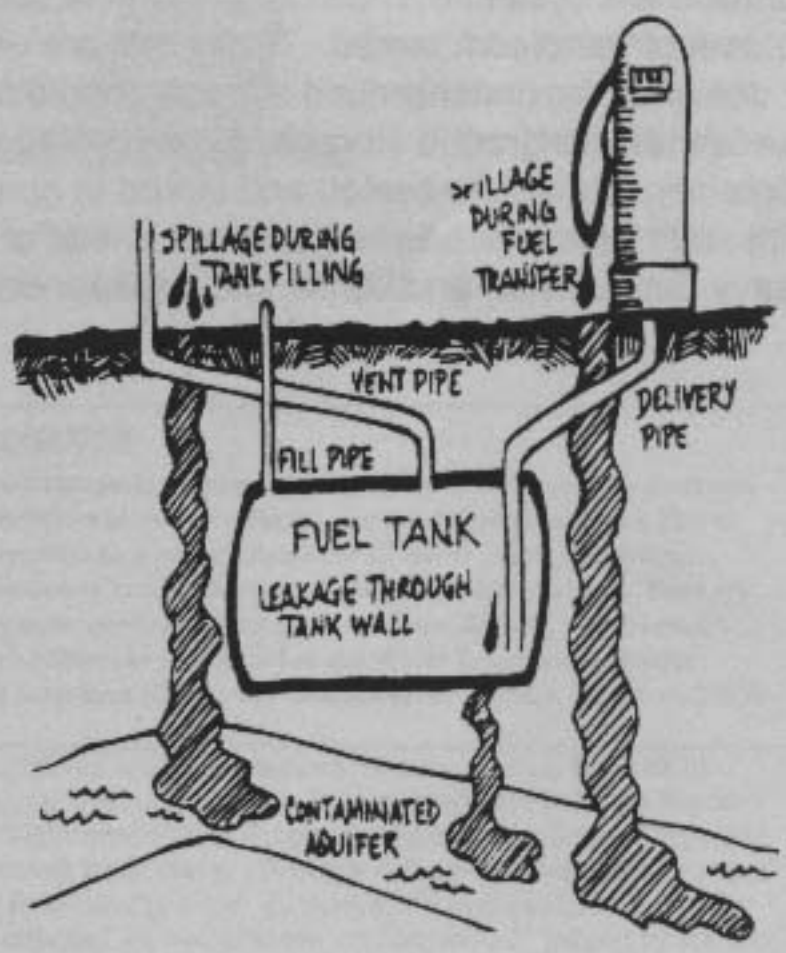
Your petroleum storage area should be located a minimum of 100 feet down slope from your water supply system. This will help protect your water supply from both leaks and spills. Your petroleum storage container(s) or tank(s) should also be located at least 25 feet from buildings and heavy traffic areas. Check with DPNR-DEP for specific regulations on petroleum storage.

3. IF YOU HAVE A PETROLEUM STORAGE TANK, IS IT LOCATED UNDERGROUND?

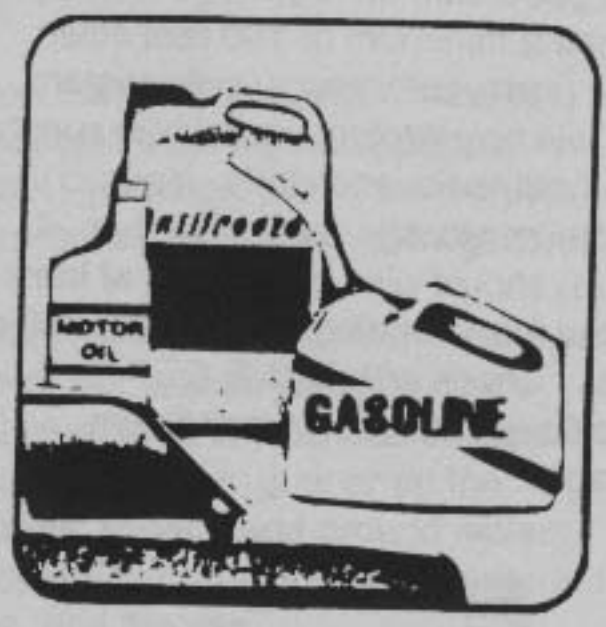
Petroleum tanks that have been buried more than 15 years can be a high risk to ground water quality.

Most underground storage tanks are made out of steel and contain little or no protection to prevent corrosion. Highly corrosive conditions such as saline, wet, or acid soils (typically those found in the Virgin Islands) can significantly increase the rate of corrosion of these tanks.

The Virgin Islands uses Federal regulations regarding the removal of buried tanks. Consult with DPNR-DEP about procedures and assistance in removing a buried tank.



4. DO YOU LACK PROTECTION AGAINST LEAKS OR SPILLS FROM YOUR PETROLEUM STORAGE CONTAINER(S) OR TANK(S) (NO CONTAINMENT, CATCH BASIN, OR CONCRETE SPILL PAD, TANK ISN'T DOUBLE-HULLED)?

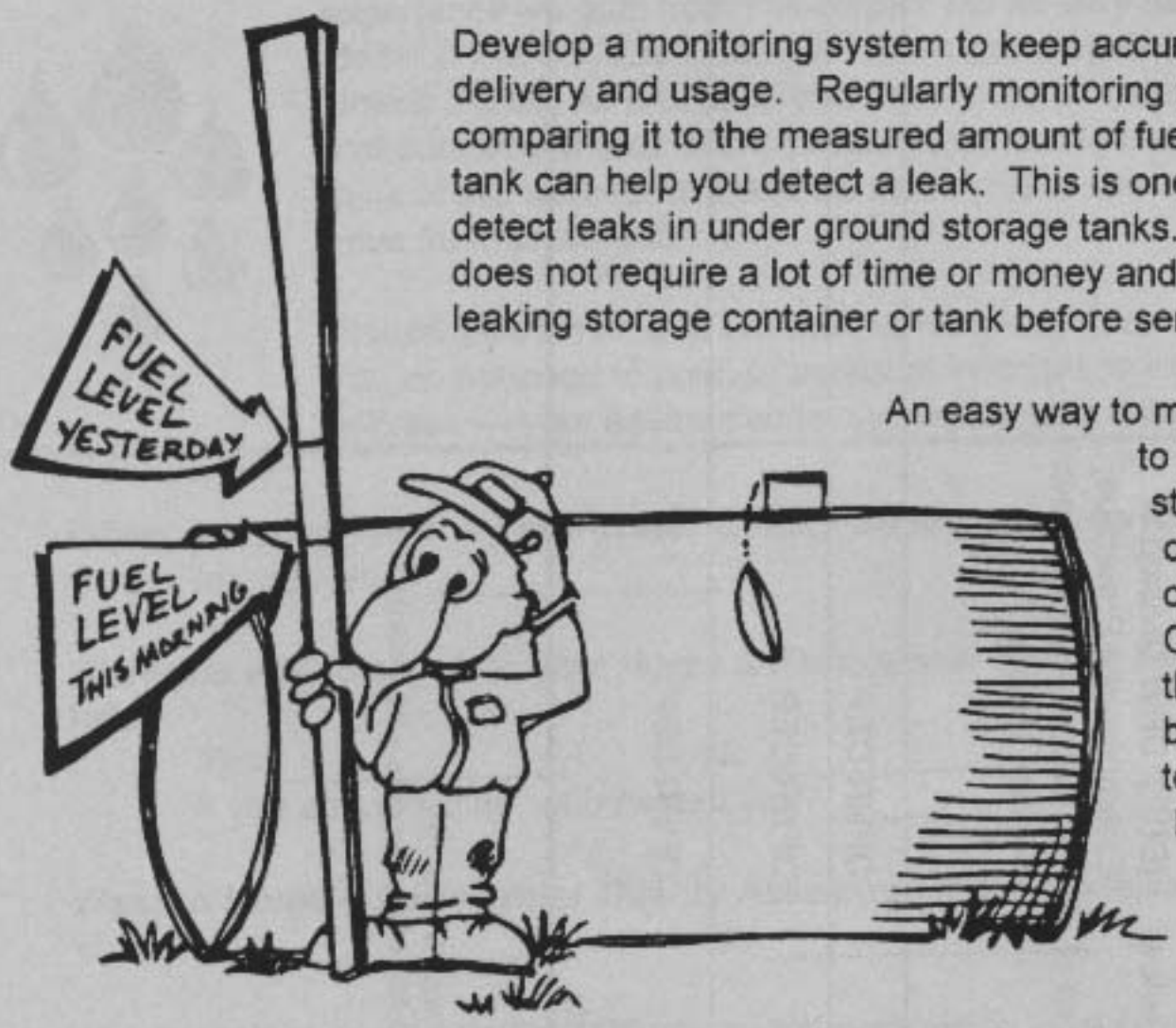


Whether you have above ground or under ground storage you need to develop a system that guards against leaks and spills. Equipment should be fueled on a concrete pad that has secondary containment (like a curb).

All petroleum storage containers and areas should be secured from children, pets, and vandalism. Under ground tanks should be protected against corrosion. Above ground tanks should be made of high quality steel and have a secondary containment system that can hold 125% of the total volume of petroleum stored. Tanks that are used or designed for under ground storage should not be used for above ground storage. Small storage containers should be sealed and stored in an area with an impermeable base (concrete, metal or heavy-duty plastic) and containment (like a curb).

5. DO YOU NEED TO DEVELOP A METHOD OF RECORDKEEPING TO KEEP TRACK OF PETROLEUM USE?

Develop a monitoring system to keep accurate records of fuel delivery and usage. Regularly monitoring your fuel use and comparing it to the measured amount of fuel in the container or tank can help you detect a leak. This is one of the easiest ways to detect leaks in under ground storage tanks. Monitoring fuel use does not require a lot of time or money and can help you detect a leaking storage container or tank before serious losses occur.



An easy way to monitor your fuel use is to have a pre-marked stick to measure the level of fuel in your storage container or tank. Check the level of fuel in the container or tank before you withdraw fuel to make sure that the level has not changed since your last use. If the level changes between withdrawals, then your container or tank may be leaking.

FOR MORE INFORMATION

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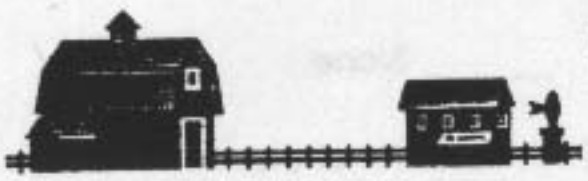
Assessing Your Petroleum Product Storage Facilities

If You Answered "Yes" to the Following Questions	What to Do	Who to Call	Other References	What You Did
Questions 1,5	Develop a regular maintenance program to check tanks for leaks, damage, etc. Review your plan for spill and leak protection. Properly dispose of waste oil. Monitor fuel usage.	DPNR Division of Environmental Protection (DEP), DPW Division of Environmental Protection, UVI Cooperative Extension Service (CES)		
Question 2	Plan to move your tank.	DPNR-DEP		
Question 3	Change to above ground storage.	DPNR-DEP		
Question 4	Construct a secondary containment system, store petroleum products properly.	DPNR-DEP		

Phone Numbers:

DPNR-DEP: 773-0565 (St. Croix); 777-4577 or 774-3320 (St. Thomas - St. John)
DPW Divison of Environmental Services: 773-1290 (St. Croix); 776-4844 (St. Thomas - St. John)
UVI-CES: 692-4080 (St. Croix); 693-1080 (St. Thomas - St. John)



HOME & FARM WATER QUALITY ASSESSMENT SURVEY

We would like to take this opportunity to say **Thank you!** For participating in this ***Home & Farm Water Quality Assessment Pilot Project.*** The experience we gain from this project will be very helpful in organizing Home & Farm Water Quality Assessment programs throughout the United States, as well as in other countries all over the world. In order to make improvements to this program, we would like to know what you think of this assessment and we invite you to share any ideas you may have for improving it.

Please take the time to answer the following questions in this survey. You do not need to provide personal information like your name or address — your assessments and worksheets will be kept confidential.

1. When was your ***Home & Farm Water Quality Assessment*** completed?
   (month/year) _____

2. Were you able to complete your ***Home & Farm Water Quality Assessment*** without help?
   Yes _____ No _____
   If you answered no, who helped you? _____

3. Was the ***Home & Farm Water Quality Assessment*** easy to follow?
   Yes _____ No _____

4. Approximately how much time did you spend completing your ***Home & Farm Water Quality Assessment***?
   _____ (hours)

5. Did you learn something new from completing your ***Home & Farm Water Quality Assessment***? On a scale of 1 to 10, with 1 being not helpful and 10 being extremely helpful, circle the number that most closely describes your feeling about this Assessment.

1	2	3	4	5	6	7	8	9	10
Not Helpful				Helpful					Extremely Helpful

6. Would you recommend that others complete a ***Home & Farm Water Quality Assessment***?
   _____ Yes _____ Maybe _____ No

7. As a result of your ***Home & Farm Water Quality Assessment***, do you plan to make changes on your property and/or around your home?
   _____ Yes _____ Maybe _____ No

8. What type of changes are you planning to make?
_____ Structural _____Management _____ None

9. Please circle **Yes** or **No** in the following table to indicate which sections of the Assessment you completed; and indicate whether any changes are planned and/or completed.

	Worksheet Completed	Changes Planned
Home & Farm Water Quality Assessment	*Y/N*	*Y/N*
Assessing the Condition and Location of Your Drinking Water Well	*Y/N*	*Y/N*
Assessing the Condition of Your Rain Water Collection System (Cistern)	*Y/N*	*Y/N*
Assessing Your Site	*Y/N*	*Y/N*
Assessing Your Household Waste Water Disposal System	*Y/N*	*Y/N*
Assessing Your Household Hazardous Waste Management Practices	*Y/N*	*Y/N*
Assessing Your livestock and Poultry Operations	*Y/N*	*Y/N*
Assessing Your Fertilizer Storage and Handling Practices	*Y/N*	*Y/N*
Assessing Your Pesticide Storage and Handling Practices	*Y/N*	*Y/N*
Assessing Your Petroleum Product Storage Practices	*Y/N*	*Y/N*

10. If you plan to make changes, please check the type of assistance you may need.
_____ No assistance needed _____ Cost share assistance
_____ Technical assistance _____ Engineering or design
_____ Other (specify) _____
_____

11. If you do not plan to make changes in situations that may threaten your drinking water supply, please indicate why (check all that apply).
_____ Too expensive _____ Too time consuming
_____ Do not feel it will make a difference _____ Need more information and/ or assistance
_____ Other (please specify) _____

12. How can this ***Home & Farm Water Quality Assessment*** be improved? Please list your suggestions and comments below.
_____
_____
_____
_____
_____