

Extension Connection

March 2020

Gilpin County CSU Extension's
Virtual Education

Vol. 1



Welcome!

by Jennifer Cook, Director

Gilpin County Extension staff have teamed up to provide virtual education via Extension Connection, a weekly email newsletter to help you get through COVID-19 social distancing. For at least 10 weeks, we will present a topic each week and include youth learning activities. We will also announce important updates on county response to COVID-19.

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COVID-19 AND GILPIN COUNTY

Tips To Stay Healthy:

- Wash your hands frequently for at least 20 seconds
- Practice social distancing
- Refrain from touching your face
- If you feel sick-stay home and self-isolate
- Eat healthy and nutritious meals
- Drink plenty of water
- Exercise frequently

Colorado COVID-19

Updates:

<https://covid19.colorado.gov/>

BY CLAIRE SKEEN, OFFICE ASSISTANT

As of March 14th, all Gilpin County Offices, including the Gilpin CSU Extension office, are closed in efforts to reduce the spread of COVID-19, also known as the Coronavirus. The closure is set to end April 3rd, but will be evaluated beforehand and possibly extended.

Following guidelines from CSU, all Extension offices will continue to work remotely until the end of the spring semester in May, even if Gilpin County offices are open. CSU is committed to safeguarding the health of all residents, staff, volunteers, families, program participants and community members. We will update our community if anything changes.

If you have any Extension-related questions, please email extension@gilpincounty.org. We're excited to serve you virtually for now, and look forward to reopening our office when everyone is healthy.

SEPTIC SYSTEMS IN GILPIN COUNTY

BY JENNIFER COOK, DIRECTOR

Toilet paper is a hot topic right now, as shelves are empty in most stores. With toilet paper on all our minds, it seems fitting to discuss septic systems.

Best practices to keep your septic system working like a charm:

- Space out laundry loads, washing dishes, and showers
- Practice water conservation
- Only flush toilet paper. Avoid flushing inorganic solids such as trash and feminine products. Refrain from pouring kitchen grease, bleach, paint or drain cleaner down your drain. Know the location of your tank, leach field and well head
- Plant native grasses and flowers on your leach field. Avoid trees, shrubs, and irrigation on this sensitive area
- Don't drive on your leach field, compaction can impact leaching field function



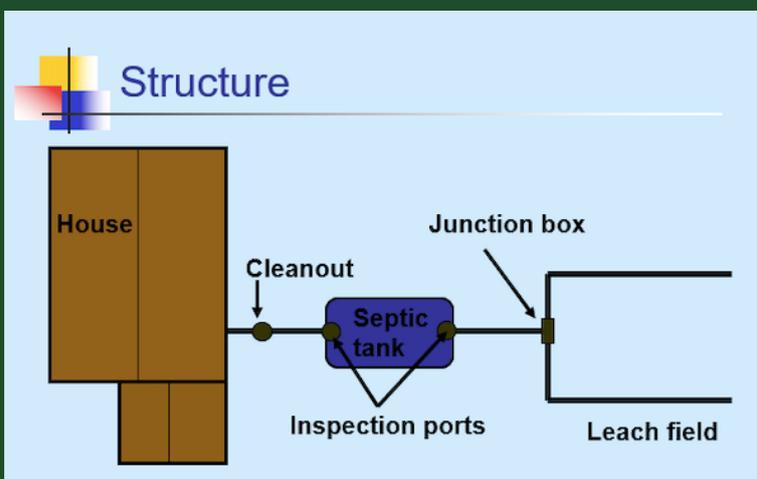
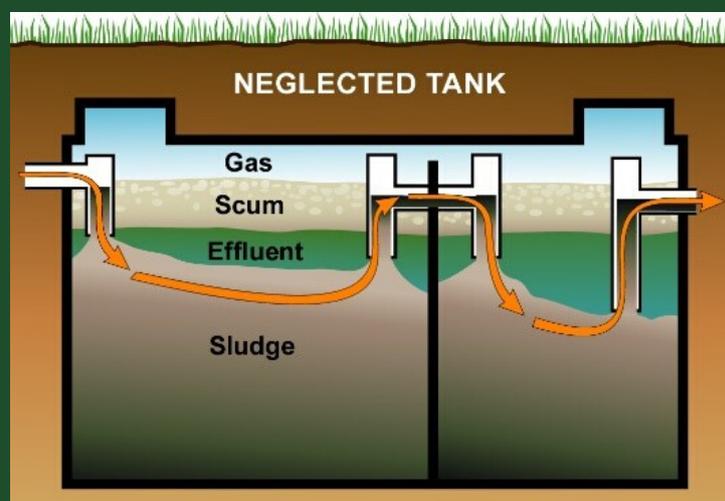
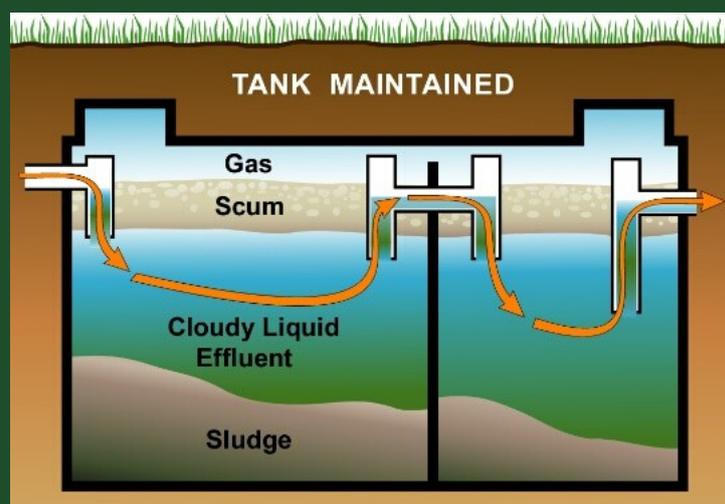
EXTENSION CONNECTION

DON'T GET CAUGHT WITH YOUR PANTS DOWN!

Sewage in your tank is about 99% water. The rest is composed of organic and inorganic solid waste. Your septic system should manage the household wastewater without any adverse health problems, odor, aesthetic or nutrient (fertilization) effects. Your tank should be sized so that it doesn't need cleaned out more than every 3 to 5 years. It is important to do this pumping, however, as an over-full tank will not work properly, creating bad odor, elevated nutrient levels, and even health problems in the form of bacteria in your water supply.

All septic systems act in generally the same way. Household waste water is collected in a holding tank – the septic tank – where bacteria digest much of the solids. The liquid is separated from the solids and is then sent through the pipes, to the junction box, and on to the leach field. Here, the liquid slowly percolates into the ground. The soil acts as a physical and chemical filter. The remaining solids in the tank collect and need to be pumped out occasionally.

Septic tanks should be inspected annually and you should pump your tank every 3-5 years, depending on its size and the number of people living in your house.



Septic systems are regulated by Gilpin County Community Development Department. Their website provides a list of certified contractors who you should use for inspections and pumping - http://www.gilpincounty.org/departments/community_development/septic_and_well_information

KID'S CORNER

THE MYSTERY OF THE CONTAMINATED WELL

Hey kids! Want to solve a mystery AND travel back in time?

This week, go back to 1992 in Gilpin County and help a family figure out why their well is contaminated.

BY KIRSTEN SPRINGER, STEM EDUCATOR

The Story:

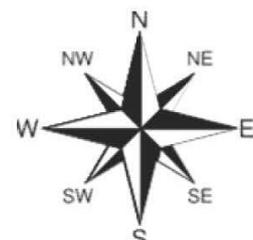
In a Gilpin County neighborhood, around the year 1992, there was a mysterious case of a contaminated well. The well, which was of most concern, had been newly dug by a family constructing their house in this neighborhood. At this time in Gilpin County there were less strict building regulations as compared to 2020, and the septic systems in many residential homes would not have met current regulations. The newly dug well water was tested and the Bobb family was dismayed to discover 100 ppm of fecal coliform in their water. The Bobbs want clean drinking water and need help to discover the source of the pollution in their well.

Your job as detective is to locate the source of contamination. Then determine whether the source is point or non-point pollution. Use the map, definitions, and description of the neighborhood to solve this mystery.

A	B	C	D	E	F	G	H	I	J
1									
2								Olson's Ranch & Peat	
3								septic tank &	
4								domestic well for	
5								livestock	
6			Brady's Summer Cabin						
7			old septic & well					House on the Hill	cess pit for septic
8									
9			Road						
10									
11									
12								Bobb's House	new well
13									new septic and leach field
14									
15									
16			Right Cabin						
17			well & septic						
18									
19									
20								Green Cattle Ranch bunkhouse	
21								stock pond, shallow hand dug well, older septic	

Pollutant Concentrations in Wells

Data Point	Sample
Well H3	10 mg/l methane
Well C6	0 contaminants
Well G7	5 mg/l methane
Well H13	100 ppm fecal coliform
Well C14	0 contaminants



The Neighborhood

The road in the neighborhood winds up the hill to a cute alpine chalet (The House on the Hill). The chalet owners use a cess-pool system for their septic. North from the chalet is Olson's Ranch where cattle are grazed and peat is mined. To the south of the chalet is Green's Cattle Ranch. The Brady's summer cabin is to the west and it has recently burned down. To the south west of the chalet is the Right's cabin that was built about 10 years previous. The new home of the Bobb family is directly south and downhill from the chalet. The Green's Cattle Ranch is south of this new house. Cattle graze the 2 ranches and the meadow where the Brady's burned summer cabin is located.

There are 2 types of pollution in terms of origination:

Non-point pollution results from many diffuse sources, such as fertilizers or chemical runoff from many properties into a stream. A non-point source of well pollution could come from agricultural manure runoff, fertilizer, pesticides, forestry operations, road construction or building construction. Non-point source pollution is harder to identify and is the leading cause of water pollution in the US.

Point pollution comes from one specific source, such as a pipe leaking. Point pollution of a water well can be from a treatment plant, industrial discharge, or poorly functioning waste systems.

Definitions

cesspit

either an underground holding tank or a soak pit. It can be used for the temporary collection and storage of feces, excreta or fecal sludge as part of an on-site sanitation system and has some similarities with septic tanks. It can be called a cess-pool when it is an underground container for the temporary storage of liquid waste and sewage. It must be pumped out on a regular schedule.

methane

Methane concentrations below 10 mg/L are generally considered safe. Wells with levels between 10 and 28 mg/L should be regularly monitored, and well owners may wish to consider treatment to lower the methane level.

peat

a deposit of dead plant material—often mosses, and in a majority of cases, sphagnum moss. Peat mining is the removal of a bog's living surface to reach the partially decomposed layers beneath. It grows at a mere sixteenth of an inch a year, and its mining removes layers that take centuries to develop. Peatlands store a third of the world's soil carbon, and their harvesting and use releases carbon dioxide, the major greenhouse gas driving climate change. Mining peat may release methane.

coliform

a large group with many different kinds of bacteria. Most Coliform bacteria are harmless. Various types of Coliform live in the soil and even on surfaces in your home, but they do not occur naturally in groundwater. If any Coliform bacteria are found, the lab does a second test to look for the special sub-group of Coliform that live in the guts of mammals (including cows) and birds. This test is for E. coli or Fecal Coliform. These bacteria indicate that your well water has come into contact with animal or human waste.

Reasons Fecal Coliform could show up in your well water:

- Work was done recently on the well, pump, or plumbing system – including new construction. If the water system was not disinfected after the work, this may be the source of bacteria. Shock chlorinate the water system and test the water again.
- The well is shallow, especially if near a stream or pond. The well may be drawing water from the surface.
- Old, unused wells. Old wells in the area may be draining bacteria into the groundwater.

The Answer

The contamination of the Bobb family well came from the cesspit system at the chalet on the hill above them. The cess-pool from the alpine chalet was not pumped out. It had always been a vacation house until purchased as a full-time residence in 1991. The buyers were unaware of it being an antiquated system using a cess-pool with a truck hood for a cover and buried in the forest. Four additional people had come to visit for the summer. With the additional waste produced from the guests, effluent was running through the trees and starting downhill. This is a point source pollution of the Bobb's well because it could be tracked to a specific source of contamination.

Now that we have solved the mystery, the chalet owners will install a septic tank and leach field so the Bobb family well will no longer be polluted with fecal coliform. Great work on solving this mystery!

Thanks for playing!

We'll see you next week for our new game!

