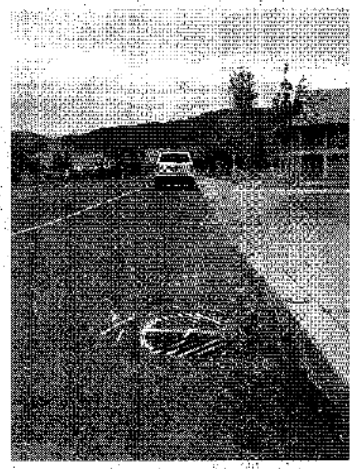
Montana Water Environment Association

Montana Water Newsletter

Issue 7 – November 2018

Montana Section
American Water Works Association



SMOKING OUT THE UNWANTED INFILTRATION

During heavy rains, the BSB wastewater treatment plant (WWTP) experiences very high influent flows, which can create problems in the plant. BSB has set out to work on reducing these high storm-related influent flows. The first step in addressing inflow and infiltration of storm water and maybe groundwater is to identify where it is entering the sewer system. Smoke testing is one method of finding cross connections between sewer and other piping. BSB contracted for smoke testing of 34 miles of sanitary sewer located within Butte. The 34 miles of pipe were selected from two basins in the collection system. One basin is the smallest and most confined and was an easy place to start working on documentation and smoke testing procedures. The second basin is very challenging as it includes the uptown commercial corridor/tall buildings, areas with dense residential development, areas with historic and/or demolished residential structures, and a mix of new CIPP trunk main and concrete/clay pipe past its design life, including some pipes to apparently nowhere.

The smoke crew is comprised of four laborers and one door hanger deliverer. While rare, in some cases, the smoke can emerge inside a residence; therefore a letter is sent to businesses and home owners four weeks before smoke testing and the door hanger is hung two business days prior to smoke testing to inform folks of the purpose, schedule, and potential impacts of smoke testing. The laborers set up traffic control, open manhole lids and spray paint inlet and outlet orientation on the ground. The smoke crew uses a high output blower, pressurized tank, and special smoke fluid to create an uninterrupted stream of smoke that is injected into the sewer piping. The crew places weights, wooden boards and plastic sheet contraptions in the sanitary sewer manholes above the flowing sewage in specific inlet/outlet pipes to direct smoke to specific reaches. This allows the smoke to concentrate in the test reach

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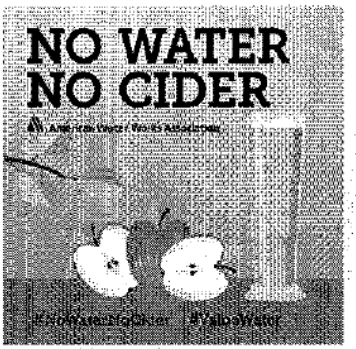
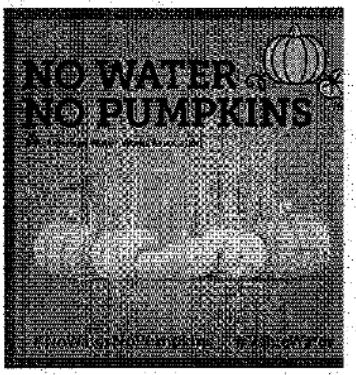
The City and County of
Butte-Silver Bow Montana

No Water No Cider!

For more ways to communicate the value of water and what we would be missing if there was no water, check out these free materials posted on the AWWA website:





And many more for your communication pleasure!

Check out the
Thames Water Singing Sewer Men

Click to view.

SMOKING OUT CONT.

while sewage continues to flow freely. Of the four laborers, one stays with the blower and uses binoculars to verify sufficient smoke at the end of the reaches (if visible) and the other three laborers walk the test reaches and look for emerging smoke around houses, roof gutters, storm inlets, and anywhere else in sight. Locations that are smoking but shouldn't be are marked on a map and the finding and photos of the location are logged through the ESRI Survey123 application.

The crew completes approximately 12.5 miles of sanitary sewer smoke testing per month. Findings include storm manholes and inlets connected to the sanitary sewer, uncapped service cleanouts, abandoned services, sanitary sewer main breaks open to the ground surface, connected roof drains, and unsealed sewer manholes that allow for surface inflow.

Once findings are compiled, BSB will either fix the problem (in the case of a missing clean-out cap or unsealed manhole), contact building owners and instruct them to disconnect their roof drains, or will inspect the pipe with closed-circuit television (CCTV) to determine the root of the problem. The projects will then be compiled for a third-party bid package. As the repairs are completed, the peak flow recorded at the plant will be compared to storm precipitation to determine the success of the project.

By Kim Snodgrass
Photos on page 1 curtesy of Butte-Silver Bow

NOVEMBER FOG – THE OTHER KIND OF FOG

Thanksgiving is around the corner, Christmas will follow on its heels and we are all looking forward to savory dinners and scrumptious desserts. All of which are sure to contain copious amounts of tasty fat, not all of which makes it into our bellies but rather into the underbellies of our cities and towns. And just as too much grease has a tendency to eventually clog our arteries, it will also clog our cities' sewer collection pipes. This menace is commonly referred to as FOG – fats, oil, and grease.

In the past few years, stories about fat bergs discovered in the London sewer have been all over the news. The fat bergs are so huge they manage to clog the large brick sewers that can be found under London. And while London is far away across the ocean, fat acts exactly the same here in Montana: when it gets cold it congeals and sticks to anything in its path – generally sewer pipes. So when you drain the hot dishwater from washing the turkey dinner pots and pans, plates and bowls, the grease leaves with the hot dishwater and gets a rather nasty shock when it hits the cold pipes outside your home. First there is the service line – typically only 4 inches in diameter it sees everything you give it – toilet waste to gravy remnants. And in the fall and winter it is cold and the cooling grease will

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FOG - CONTINUED

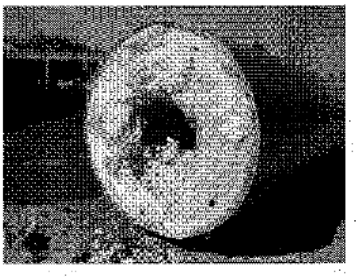
quickly grab on to the pipe wall for support. If the grease makes it past the service line to the collection system piping it finds ample chances to further plaster itself on pipe walls or anything else it might find, such as clogs of flushable wipes. Grease combined with just a couple of flushable wipes has all the makings of a baby fat berg. Babies grow fast and fat berg babies attract anything else substantive coming along the sewer pipe. So before long, a fully grown fat berg occupies the sewer. Then what happens? Here in Montana, the vast majority of sewer pipes are anywhere from 6 to 12 inches in diameter and it doesn't take very many wipes and grease to create a blockage. And on Black Friday, when you come back from standing in line for hours for that shiny new gadget, you may find sewage backing up in your basement. Not a pleasant thought. When the plumber is done, he may be sure to let you know that there was a lot of grease in your service line. Or city staff clean the sewer collection system piping because you called in an emergency and the staff will be missing their chance to stand in line for their Black Friday deal. And with enough service calls like that, your sewer bill just might have to go up because the City has to buy more equipment and hire more staff to deal with the sewer backups on top of all the other services they already provide.

So what can we all do to help keep all that from happening? Let's wipe pots and pans with paper towels before putting them in the dishwater, scrape food waste into the garbage can instead of the sink garbage disposal, and most importantly, collect the cooking grease from the deep fried turkey, the breakfast bacon, or hamburger juices in suitable containers, rather than pouring it down the sink or toilet. You can Google all sorts of suggestions for how to contain cooking grease. I use any sizable glass jars with lids, collect the grease until the jar is full, put on the lid and carefully place it in my garbage. Another option would be to repurpose tin cans from being recycled to serving as grease containers and keeping them in the freezer to keep the grease from spilling. On garbage collection day, place them in the garbage can (in a garbage bag) and off they go to the landfill instead of the sewer.

Well, I hope, I didn't spoil anyone's appetite for holiday dinners and all the ones in between. However, I do hope that you remember where stuff goes when it gurgles down your sink drain or swirls down your toilet. And please help keep the system that receives your waste and carries it away from your home functioning properly to avoid nasty surprises and costly repairs. Plumbers and City staff will thank you for not being called out on Black Friday or Christmas morning to clear a grease clog or remove a fat berg.

FOG EDUCATION

If you are looking for help reaching rate payers in efforts to educate them about proper sewer behavior, you may use this FOG article as is or modify it as you like and publish it on your websites, local newspapers or in form of a bill stuffer. If your target audience is restaurants, there are resources out there to help you spread the word to restaurant owners and staff about having adequately sized grease traps and maintaining them. Clean Water Services (CWS) is a private water and sewer company serving over half a million residents in Washington County, Oregon and it has a very active grease trap program. CWS has developed a brochure educating restaurant owners and staff about all things grease and how to handle it properly. CWS is offering to customize the first and last pages of this brochure for any City or Town, email a pdf and allow unlimited copyright – all for free. Check out the brochure here: https://www.cleanwaterservices.org/media/1764/fog-program-booklet-english.pdf and find out about other information CWS offers by clicking on this grease-clogged pipe.



You may also want to check with other communities here in Montana to see how they're attacking FOG in their sewers.