

Downstream

Announcer: [0:03] This film is brought to you by 4-H, America's largest youth development organization, in collaboration with Montana State University and TerraPod, and made possible by a grant from Toyota. [0:25] [water running]

Suzy: [0:37] Now that I knew how precious water was, I was going to try and use a little less. But I still don't understand what happens to water after it goes down the drain. So, after a little more research my dad and I headed down the stream back to that river I never even knew ran through the city. [0:59] What about your city? Does your town have a river running through it that you never knew about?

[1:08] [music]

Suzy: [1:14] We came to a spot in the river where all of the clean water was coming out of a pipe. [1:21] [sounds of water gushing]

Suzy: [1:25] Hey, do you know how much water it takes to make that cup of coffee?

Tom: [1:28] Oh, about 30 gallons.

Suzy: [1:30] How'd you know?

Tom: [1:31] I know quite a bit about water. I work at a water treatment plant.

Suzy: [1:35] I've been there. The one with Rick?

Tom: [1:38] No, actually the one that I work at is a little bit different.

Suzy: [1:41] Where's all this clean water coming from?

Tom: [1:43] I think you'll be surprised.

Tom: [1:45] Hi, I'm Tom. I'm the superintendent of the city's wastewater treatment plant. We take ugly wastewater that looks like this and we run it through treatment systems like this settling tank and through biological treatment systems. Aeration tanks like this one are really the heart of any wastewater treatment plant. [2:05] The next stage of treatment includes final clarifiers like the one we're standing in front of right here. The last stage of treatment is chlorination. We use chlorine to disinfect the plant effluent and then once it's fully treated and purified we discharge it to the receiving stream.

[2:22] The whole process of moving a gallon of water through the plant takes anywhere from 16 to 20 hours. That's a lot of treatment and we produce a really nice, high quality treated water that can be safely discharged back into the environment.

Suzy: [2:35] So, I flush stuff down the toilet and it ends up here?

Tom: [2:40] Yep, right here.

Suzy: [2:42] But it's so clean.

Tom: [2:43] We work hard to treat it and purify it.

Suzy: [2:46] Is it safe to drink?

Tom: [2:47] Almost. You have to remember that any water taken from a stream is going to require additional treatment before it would be totally safe to drink.

Suzy: [2:54] Right. I was up at the plant that purifies the water yesterday. That makes sense, but why don't you put the dirty water somewhere else instead of back into the stream?

Tom: [3:04] That treated water has to go somewhere. Fish need clean water, wildlife needs clean water, but there's another important reason also why we treat this water. Downstream from us, there are dozens of other cities and those cities are going to take that water, draw water out of this same river, and use it for their drinking water supply.

Suzy: [3:23] Really?

Tom: [3:24] Those other cities are going to treat that water and purify it again, but that water is still eventually going to end up in someone else's drinking glass.

Suzy: [3:32] Seriously, that's really cool. [3:38] There was something the farmer said that I kept thinking about.

Farmer: [3:41] I don't even want to guess how much water it'd take to make your camera there.

Suzy: [3:44] I don't know where any camera factories are but my dad knew some people at a car factory a little further downstream.

Dawn: [3:50] Hi, my name's Dawn and I'm an environmental engineer at this automobile plant.

Roger: [3:56] Hi, my name's Roger and I also work in one of the engineering departments here in the manufacturing plant.

Suzy: [4:02] Dawn and Roger were there with a group of 4-H kids training them how to test the wastewater from the factory to make sure it's clean enough to go back into the river.

4-H'er 1: [4:10] Why do factories like this one care so much about the water?

Suzy: [4:12] The 4-H'ers had some of the same questions that I did.

4-H'er 2: [4:14] I have a question about the pond.

4-H'er 3: [4:16] Why does it take so much water to make cars?

Dawn: [4:18] It does generally take a lot of water to manufacture things. We know that water's not free, so we want to reduce water as much as possible and then recycle and reuse it if we can. Not only has reducing our water usage saved us millions of dollars, but it's also just good to do for the environment as good environmental stewards.

Roger: [4:37] It takes approximately 600 to 700 gallons per vehicle to when the finished car goes off the line.

Dawn: [4:44] Mainly it's from our painting processes, heating and cooling the buildings.

Roger: [4:49] Not only does it take the water that we use here in the manufacturing of cars, but also in the raw materials that goes into the car.

Dawn: [4:57] We send every vehicle through a water test booth that checks for leaks in the vehicles to make sure they're leak-free. We reuse that water again and again and again.

Roger: [5:07] Yes, it does take a lot of water to make cars, and we are concerned about the quality of the water when it leaves our plant.

Dawn: [5:13] We want to make sure that we release good quality water so that downstream it'll have a positive impact rather than a negative impact on our environment. [5:25] I grew up on a lake, so I did a lot of boating and swimming and hiking. So knowing how much I enjoy being outdoors and being on the water, it was important to me to do something about it as an adult. Being an environmental engineer was a perfect way to ensure that I was still involved in the environment and helping to keep it clean.

Suzy: [5:46] I liked meeting all these people who cared about water and who were as into it as I was. I have met some 4-H'ers my age who are doing some pretty cool stuff with water.

Camper 1: [5:57] My name is Cynthia.

Camper 2: [5:58] I'm Diego.

Camper 3: [5:59] My name is Millie.

Camper 4: [6:00] I'm Anna.

Suzy: [6:02] The 4-H camp is working on a project to protect a pond. The pond looked kind of gross, but it was really full of life.

Camper 1: [6:12] I like helping with the pond, because I love frogs.

Suzy: [6:16] In fact, I couldn't believe how much life depended on this little pond.

Camper 5: [6:21] This is awesome.

Camper 6: [6:26] OK, my name is Isaiah, and I like helping out this pond because it's not just an empty pond. Many amphibian-type creatures live here.

4-H Camp Counselor: [6:37] My name's Ryan, and every year we do this habitat restoration program. The whole idea behind it is that we leave the camp and the environment better than when we found it. We do some project during the week, a couple hours a the day, with all our campers, and get them involved and get them invested in taking care of the environment around us. [7:04] [music]

Suzy: [7:05] It's too bad we couldn't keep going, because I wanted to learn about all the other places downstream. I know this river keeps going a long way, but it made me feel good that everywhere I looked, I met people who were actually doing stuff to make water and environment healthier. Even my dad was pitching in. It made me want to do something too. So when I got home, I did. [7:38] What about you, what are you going to do?

[7:41] [music]

Announcer: [8:57] This film is brought to you by 4-H, America's largest youth development organization, in collaboration with Montana State University and TerraPod. Made possible by a grant from Toyota. [9:15] [music]

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