

THE ADVENTURES OF H₂O JOE

AND THE MYSTERIOUS WATER LEVEL





This comic is the first in a series of comic books created by First Nations Technical Services Advisory Group to teach students in grade 3-6 about the Superheroes that make and keep our water safe to use.

PDF copies of this booklet and other educational materials are available from TSAG

Telephone: 780 486 8601

Email: crtp@tsag.net

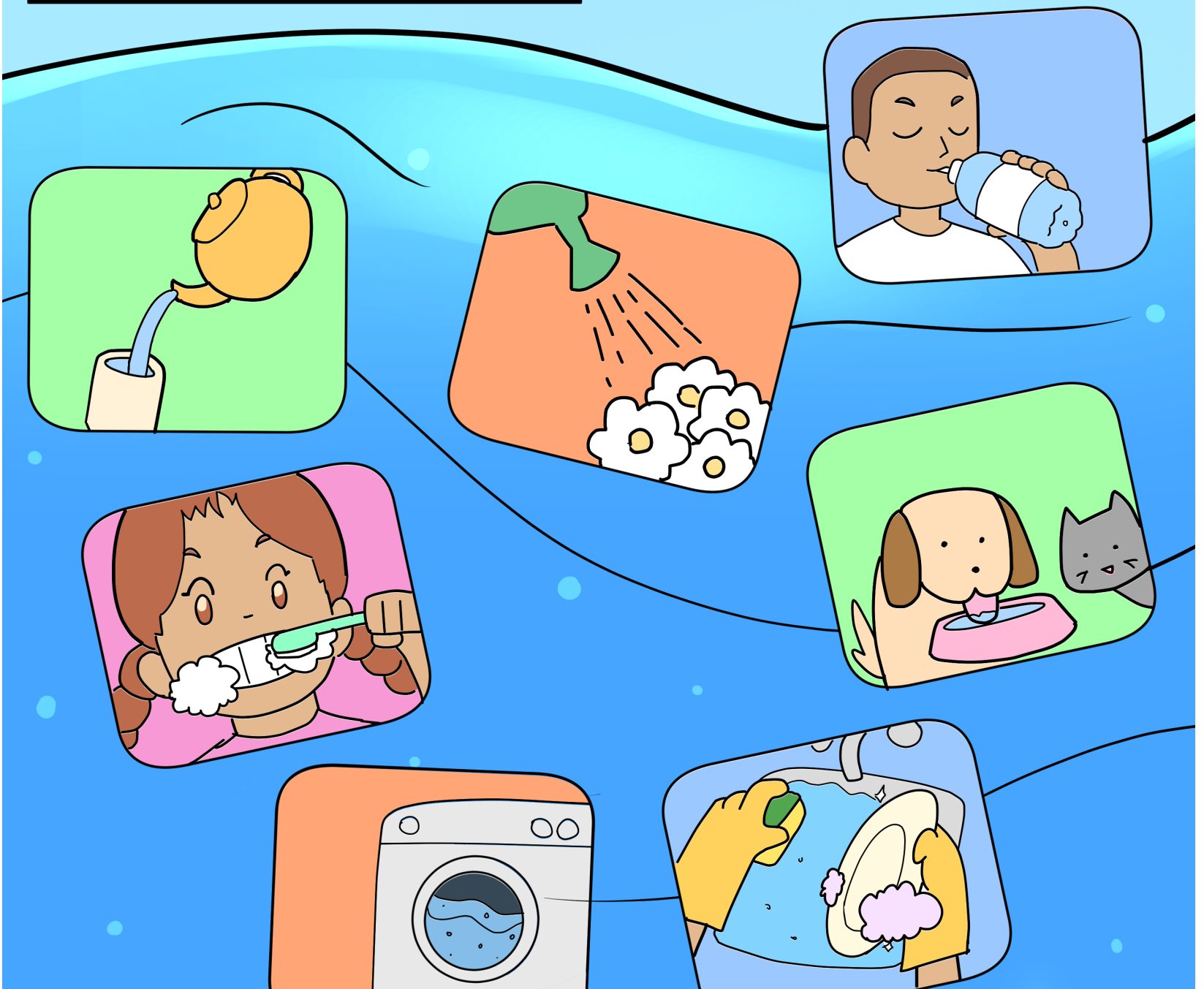
Address: 18232-102 Ave, Edmonton,
Alberta. T5S 1S7.

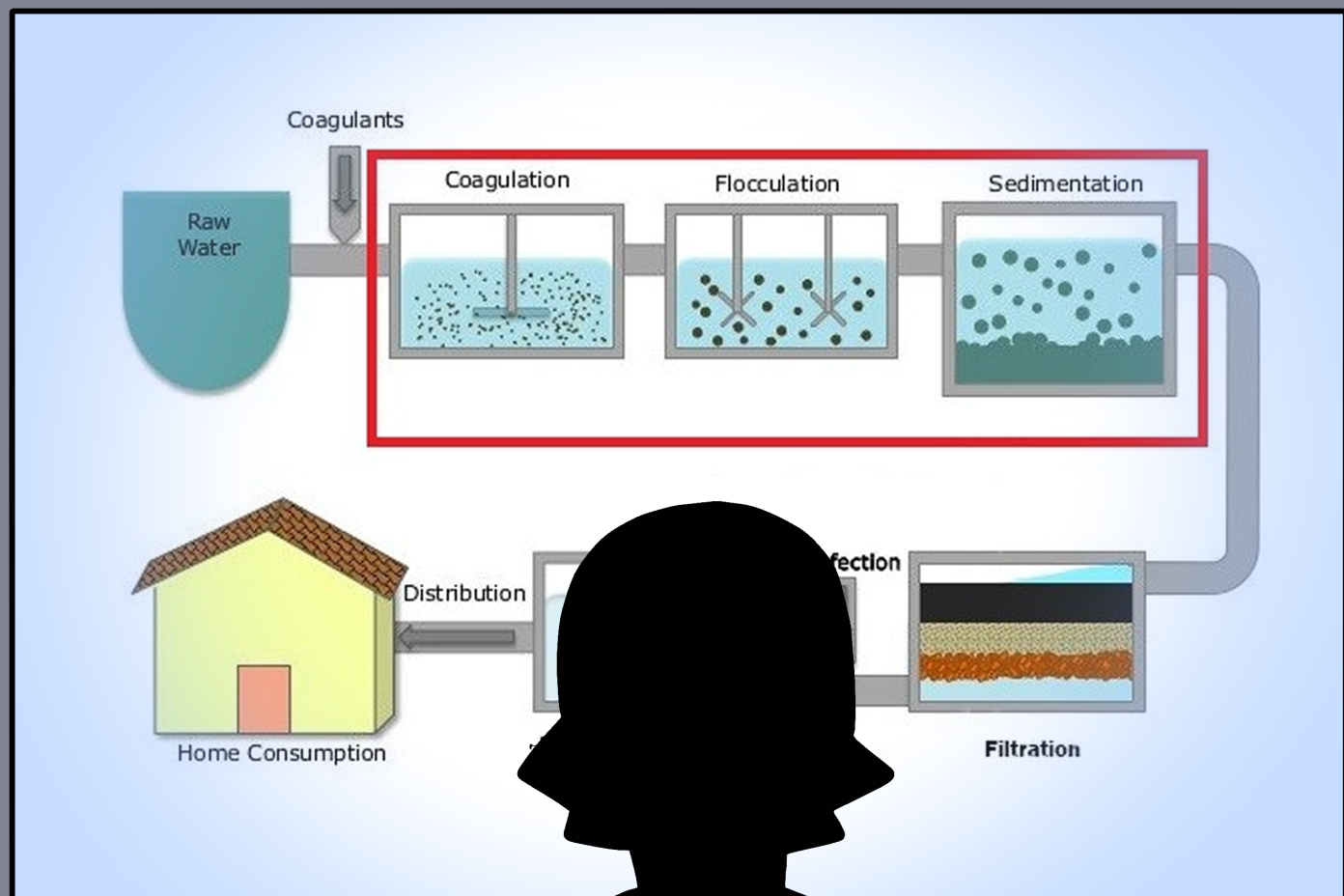


Out of all the water on earth, only 3.5% of it is freshwater that is available for everyday uses like the pictures you see here.

Even though it is available, it can't be used as we see it in lakes, rivers, and ponds because it is contaminated. Believe it or not, in one drop of water there can be millions of bacteria, plankton, algae and even worms.

That means that the water that Mother Earth provides must be cleaned so that we can safely use it.





To make and keep the water clean, the water has to go through several processes in a Water Treatment plant. But the WTP doesn't run itself. It takes someone who is trained in water treatment, water distribution, wastewater treatment and wastewater collection.

Most importantly, it takes someone who cares for his Nation and wants to ensure they are getting safe clean water-someone who would go to any length to protect his Nation and provide the best water possible.

It takes a true superhero!

Meet our Superhero H2O Joe!

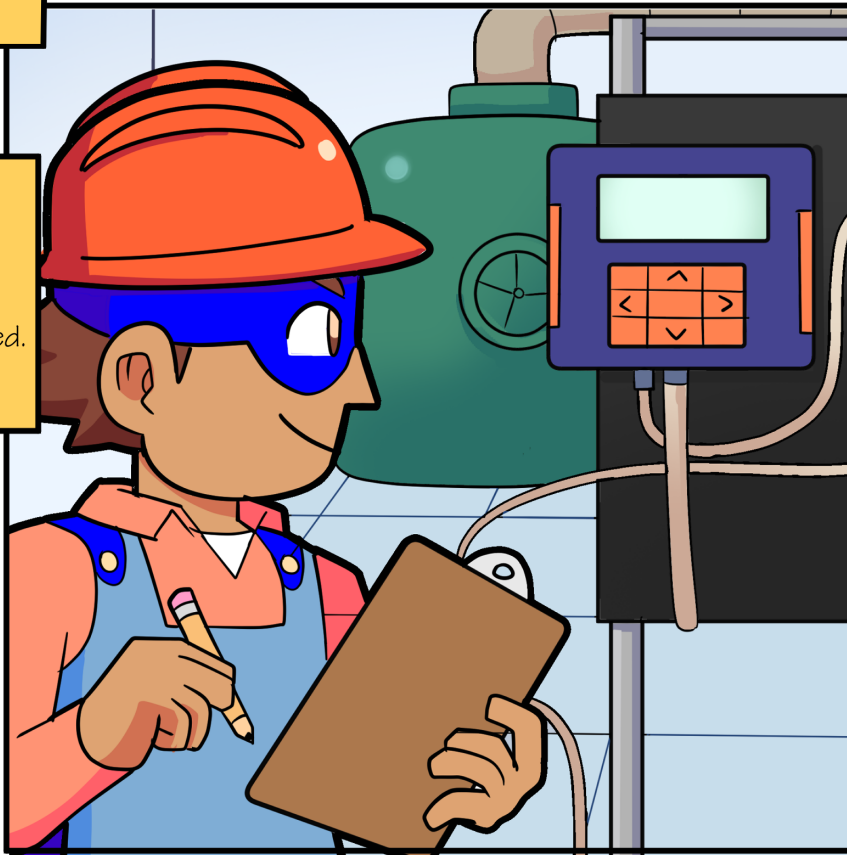
His Superpower is healing contaminated water. He works as a water operator at your local water treatment plant to make and keep the water gifted to us by Mother Earth clean.

This keeps H2O Joe very busy- he has many jobs to do each day and works with other superheroes when he needs extra help to fix really big problems.



Some of Joe's jobs include:

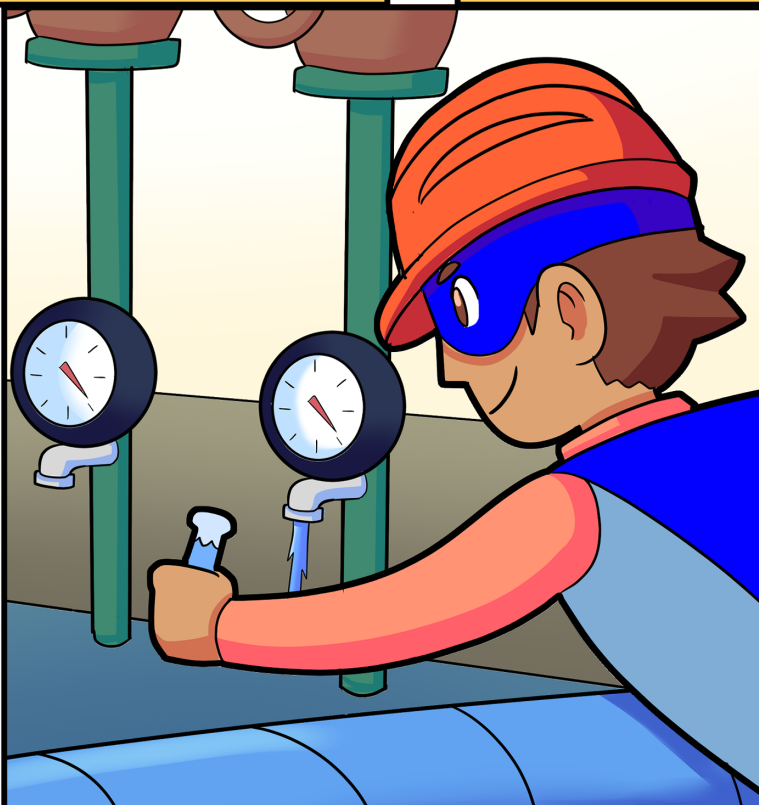
He monitors and maintains equipment. He is trained to identify, repair and replace anything that needs to be fixed.



He takes daily samples of the water at each stage of the water treatment process.

He tests the water samples he takes for chlorine, iron, manganese, turbidity, and pH.

He also keeps the plant clean and surrounding areas in order.



H2O Joe's first job of the day is to look at his computer screen which has a dashboard that shows the water levels and pressures. Today the screen is showing that the water levels are much too low.

What could have caused the drop in water level and pressure?

WATER SUPPLY

Is our water well being overused?

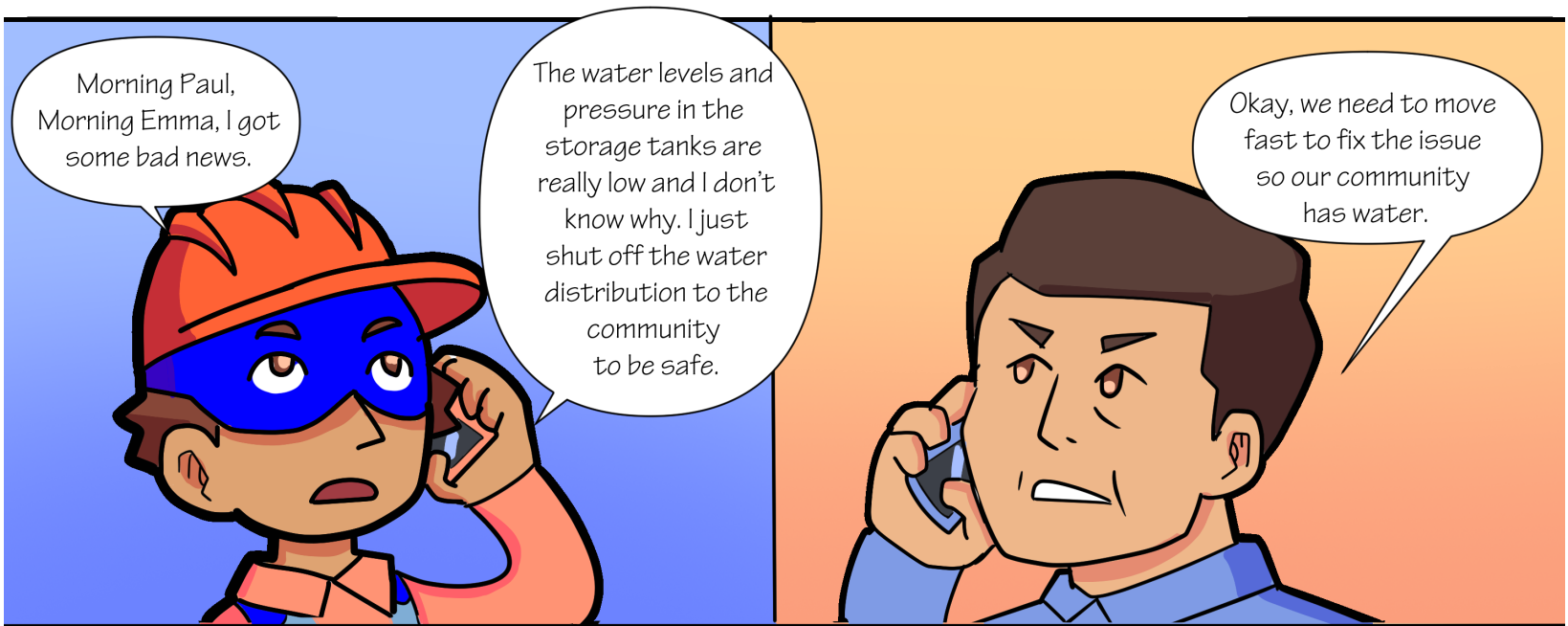
Is it due to equipment failure

or treatment system capacity?

H2O Joe needs to call the Public Works manager and tell him what happened

I need to shut off the water distribution line right away

ON OFF



Morning Paul,
Morning Emma, I got
some bad news.

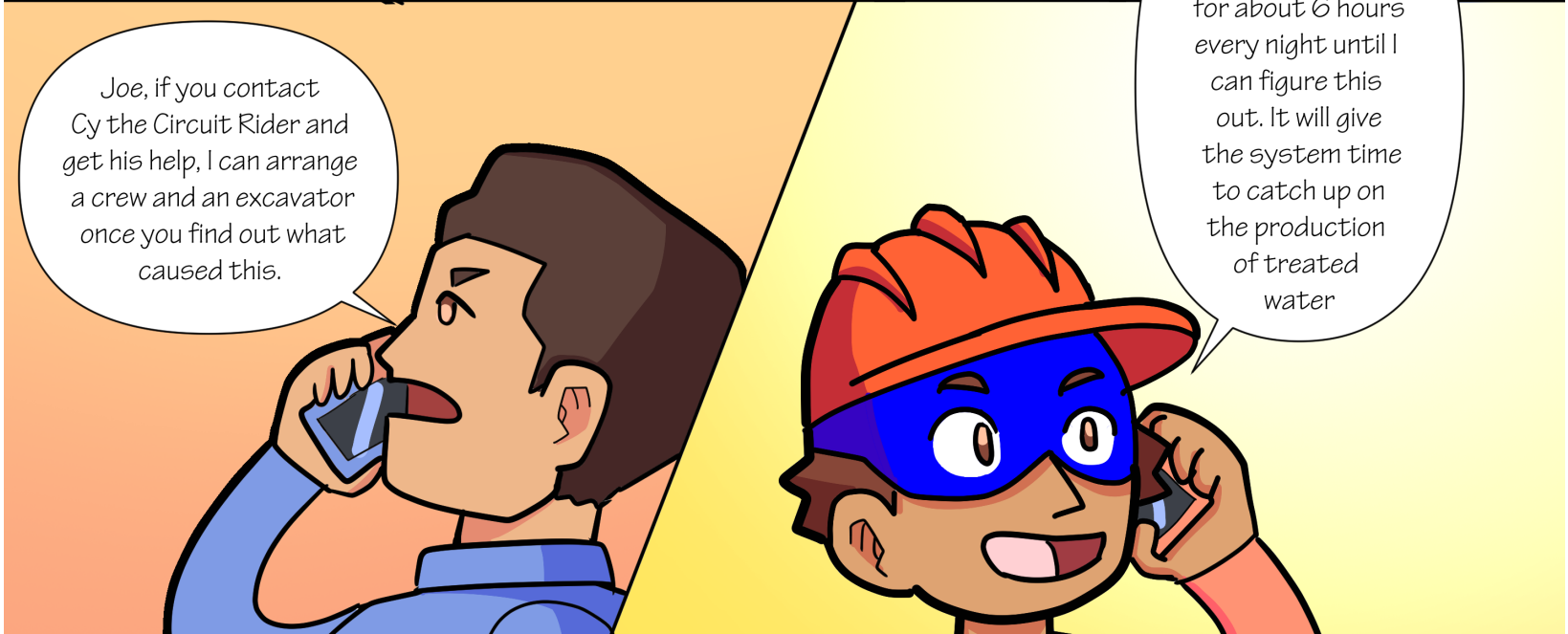
The water levels and
pressure in the
storage tanks are
really low and I don't
know why. I just
shut off the water
distribution to the
community
to be safe.

Okay, we need to move
fast to fix the issue
so our community
has water.



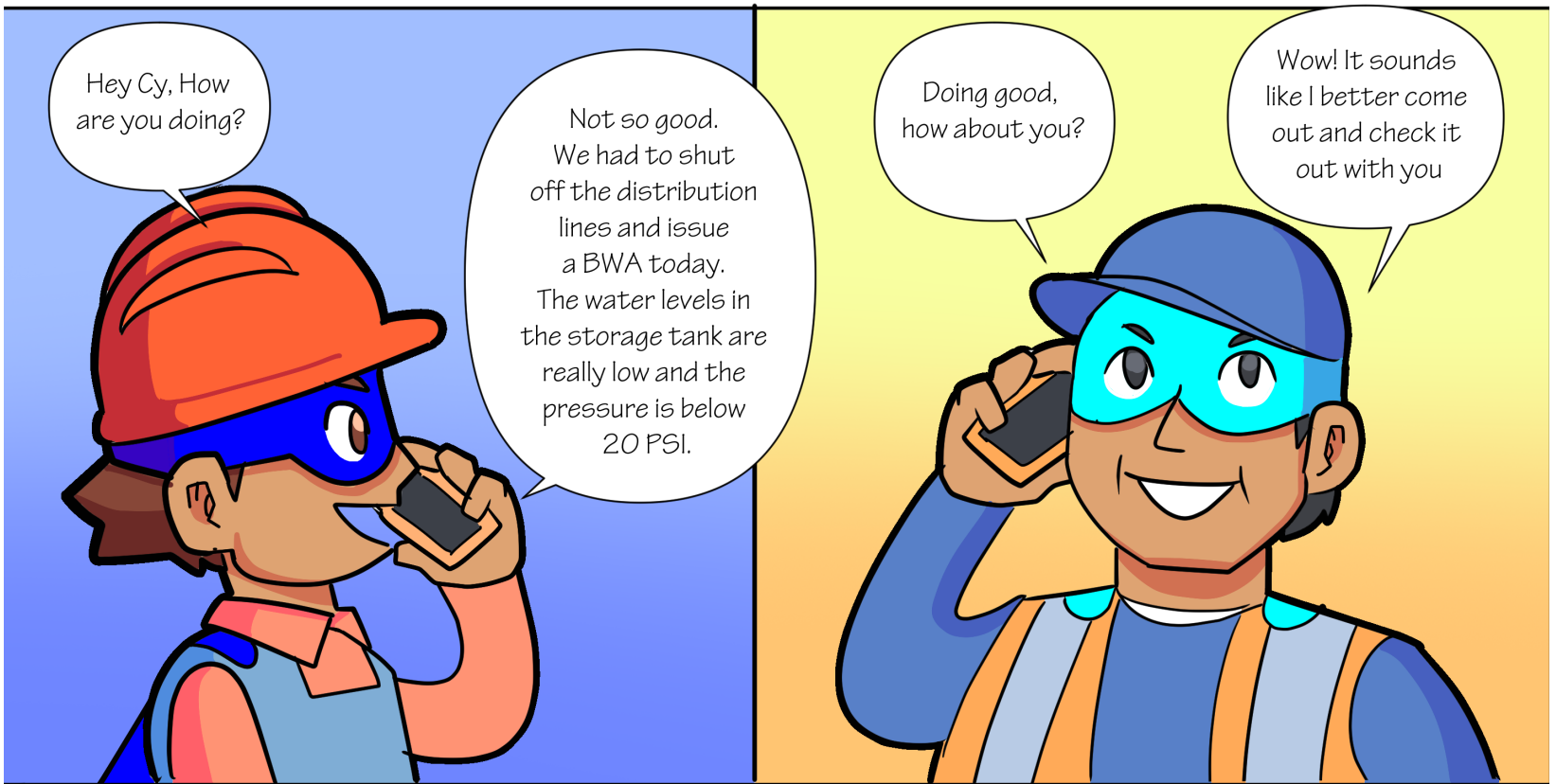
I will issue a
Boil Water Advisory
because there is a
risk of contamination
if the water pressure
falls and untreated
water gets into the
water distribution
through any
cracks.

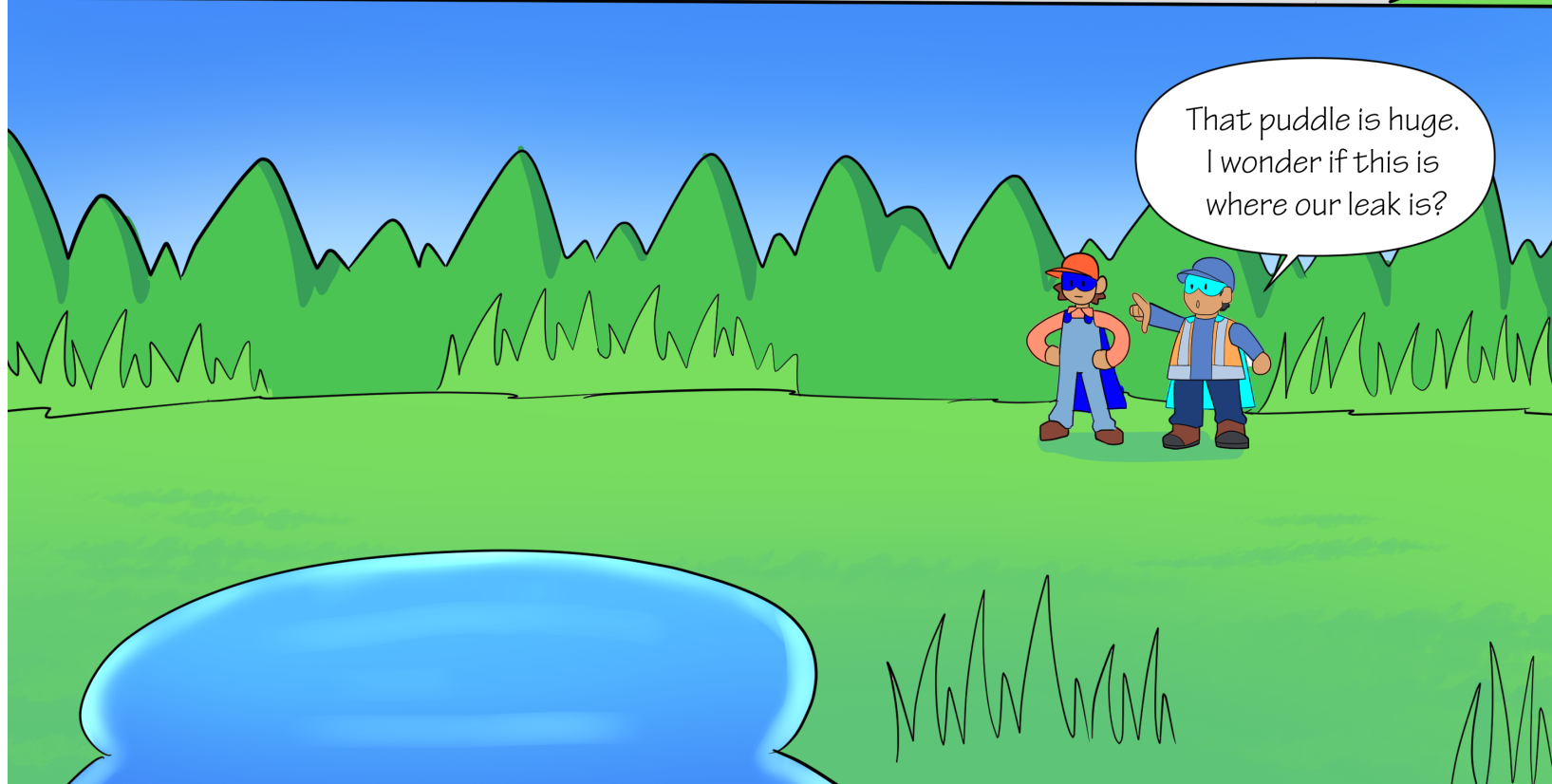
I think it would be
good to shut off
the distribution
for about 6 hours
every night until I
can figure this
out. It will give
the system time
to catch up on
the production
of treated
water



Joe, if you contact
Cy the Circuit Rider and
get his help, I can arrange
a crew and an excavator
once you find out what
caused this.

I think it would be
good to shut off
the distribution
for about 6 hours
every night until I
can figure this
out. It will give
the system time
to catch up on
the production
of treated
water







I'll take a water sample and mix it with some this powder. That will tell me if there is chlorine in it.

If there is chlorine in the sample, we'll know it is from the distribution line.

This water definitely has chlorine in it – this is where our leak in the distribution line is.

I will call Paul and get the maintenance crew out to help fix this.

The Nations maintenance crew then comes and digs down to the line.

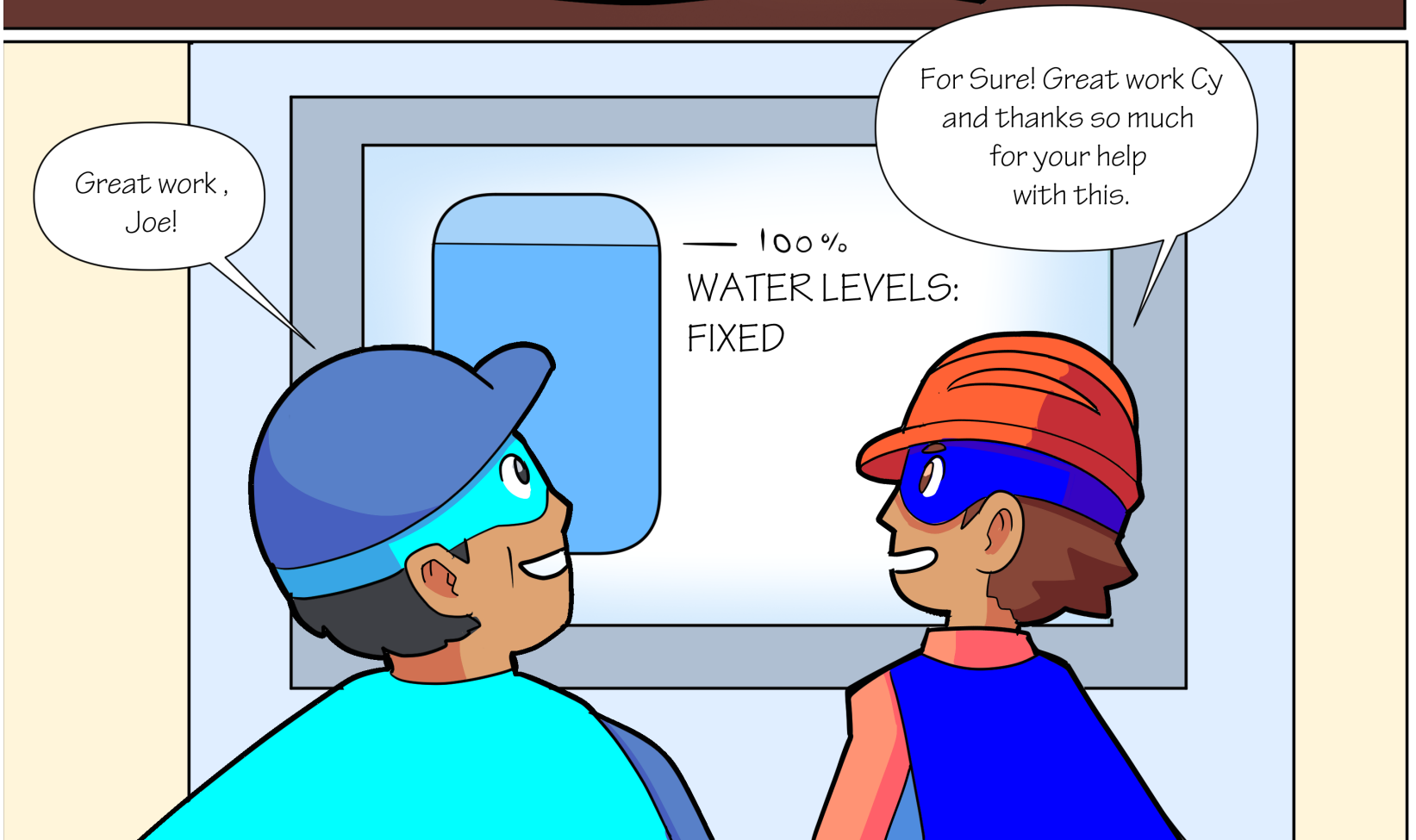
Those valves looked to be improperly installed and the fittings either rusted away or broke.

Good thing I have some new ones handy.





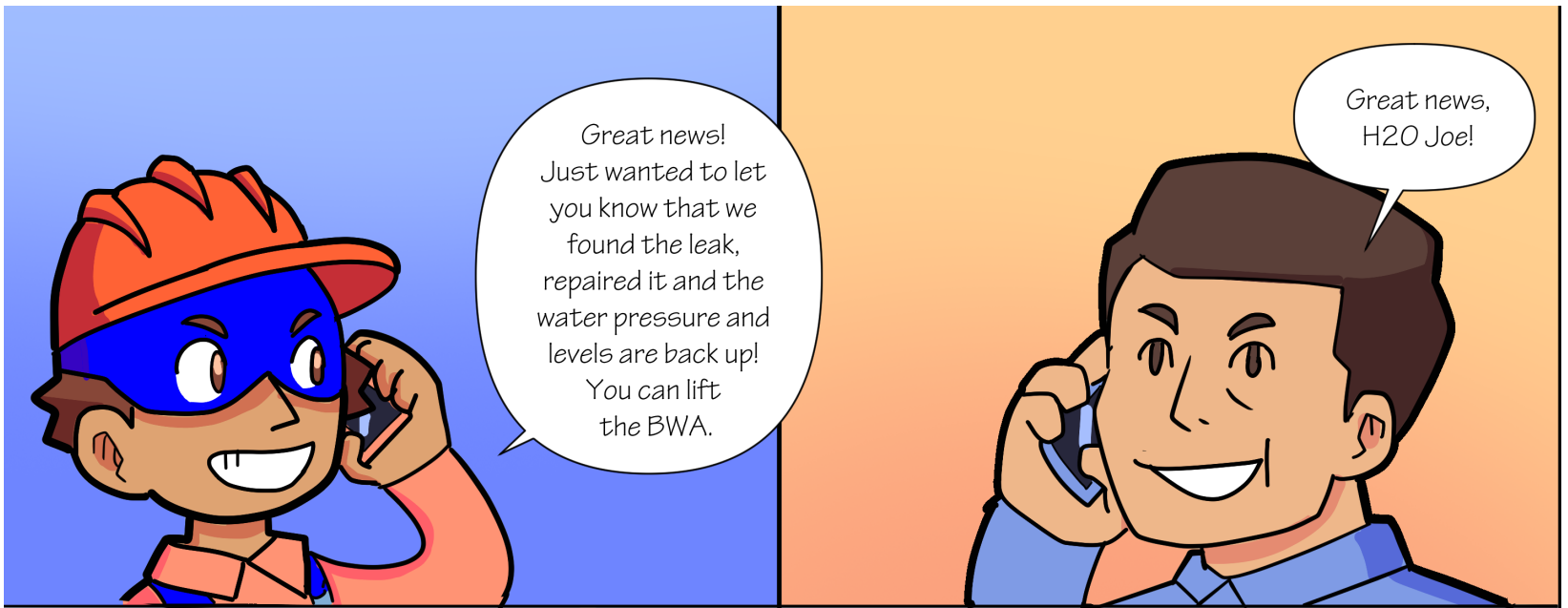
LEAK FIXED!



Great work,
Joe!

For Sure! Great work Cy
and thanks so much
for your help
with this.

— 100%
WATER LEVELS:
FIXED



TEAR OUT PAGE:
H2O JOE



TEAR OUT PAGE:
CY THE CIRCUIT RIDER



H2O Joe's World

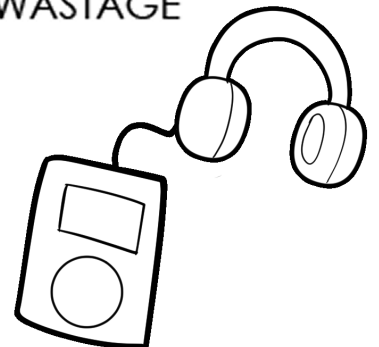
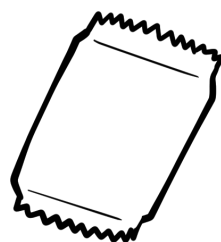
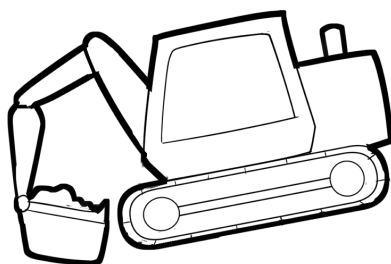
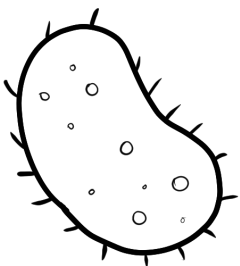
D	O	E	F	W	A	T	E	R	S	A	M	P	L	E	M	Z	P
C	D	I	S	T	R	I	B	U	T	I	O	N	L	I	N	E	G
O	J	P	C	A	L	E	A	K	D	E	T	E	C	T	O	R	C
L	M	W	A	T	E	R	W	A	S	T	A	G	E	T	O	A	O
L	W	H	W	A	T	E	R	O	P	E	R	A	T	O	R	A	M
E	L	U	L	M	Z	O	U	N	T	R	E	A	T	E	D	R	M
C	Y	J	X	H	S	E	X	C	A	V	A	T	O	R	B	M	U
T	X	F	T	C	I	R	C	U	I	T	R	I	D	E	R	L	N
I	B	F	R	E	S	H	W	A	T	E	R	Z	Y	K	L	S	I
O	Z	W	I	P	L	B	A	Y	P	V	U	H	Q	A	L	X	T
N	F	F	A	L	M	O	T	H	E	R	E	A	R	T	H	E	Y
E	U	J	C	O	N	T	A	M	I	N	A	T	I	O	N	L	Q

Find the following words in the puzzle.
Words are hidden → ↓ and ↘ .

BWA
CIRCUIT RIDER
COLLECTION
COMMUNITY
CONTAMINATION

DISTRIBUTION LINE
EXCAVATOR
FRESHWATER
LEAK DETECTOR
MOTHER EARTH

UNTREATED
WATER OPERATOR
WATER SAMPLE
WATER WASTAGE



Home Activity

Find the water wastage in your home.
Fill in the blanks with types of water leaks you find!



1. _____
2. _____
3. _____
4. _____
5. _____
6. _____

Water leaks in homes can waste up to 90 gallons of water a day. These leaks are from toilets, dripping faucets, taps that are not completely turned off inside or outside of the home. Fixing these leaks can save money and water. Go through your home (inside and out) to see if there are any water leaks.

Show your parents what you find.

Helpful Leak Hint:

Put a bit of food coloring in the tank of your toilet. Leave for 10 minutes without flushing the toilet. If the coloring is in the toilet when you check, you have a leak.

For Parents and Teachers:

Water Facts and Activities to do with your children

Water Facts

- A shower uses just over 7.5 liters of water a minute.
- The average person uses 251 liters of water per day
- 96.5% of the water on earth is in the oceans and we can't drink it or use it without processing it. That means that only 3.5 % is fresh and found in lakes, rivers, streams, ground water and glaciers. 70% of the freshwater is found in glaciers and is permanently frozen.
- Thousands of chemicals are removed from water before we drink it: arsenic, fluoride, chromium, and lead.
- The most common type of treatment system being installed today in First Nation's communities is some form or combination of membrane treatment types from Micro and Ultrafiltration to Nano and R.O membrane



Activities you can do with your students or children

- Discuss ways that your family can reduce the amount of water they use everyday.
- Contact your community's water treatment plant operator and see if you can go for a tour of the water plant to see how they make drinking water.
- Ask an Elder to share their knowledge about water with your class or child.
- Time the amount of time each person in your household spends in the shower in one day. If they are all spending more than 7 minutes in the shower, calculate the amount of water they are using. Think about setting a timer for showers.



See you again for H2O Joe's next adventure!