



# Groundbirch and WATER

Water is an important resource to all of us. Protecting and managing water is a foundational component of our upstream operations. At Groundbirch, we work to minimize our fresh water use, improve our processes and share best practices as we build a responsible and sustainable asset.

**10**  
**YEARS 2008-2018**  
GROUNDBIRCH



## REDUCING OUR IMPACT

- We minimize fresh water use by recycling and reusing water from our processing plants and gas wells (produced water).
- In 2008, Shell acquired the Groundbirch asset which used 100% fresh water at the time. Today, more than 98% of water used in our operations is recycled.
- In 2012, we partnered with the city of Dawson Creek, B.C. to build a reclaimed water facility to treat the city's wastewater for reuse in the industry and community.
- Our first water storage facility was built at the Sunset gas plant, followed by another storage facility at our Saturn plant. Initially, these ponds were used for the Dawson Creek Reclaimed Water Project, but as our processes evolved, they transitioned to store produced water for recycle into our operations.
- By 2014, Groundbirch had almost completely relieved its reliance on the Dawson Creek Reclaimed Water Project. The municipality now uses the reclaimed water for dust control on local roads, and sells it to other producers to offset their fresh water use.

- Water pipelines built throughout our field distribute water between our assets, minimize traffic, reduce emissions, noise and dust, and improve road safety.
- When fracking new wells, we use almost 100% recycled produced water.
- We offer five-year sampling of domestic wells to anyone within our operational footprint.
- We complete water well testing before, during and after development activities.

## SHARING BEST PRACTICES

- The engineering and leak detection designs of our water storage ponds have been adopted by the B.C. Oil & Gas Commission, and are the default for Shell Global Projects & Technology, and Development.



## WATER ONSHORE OPERATING PRINCIPLE

SHELL CONDUCTS ITS OPERATIONS IN A MANNER THAT **PROTECTS** GROUNDWATER AND **REDUCES** POTABLE WATER USE AS REASONABLY PRACTICABLE.

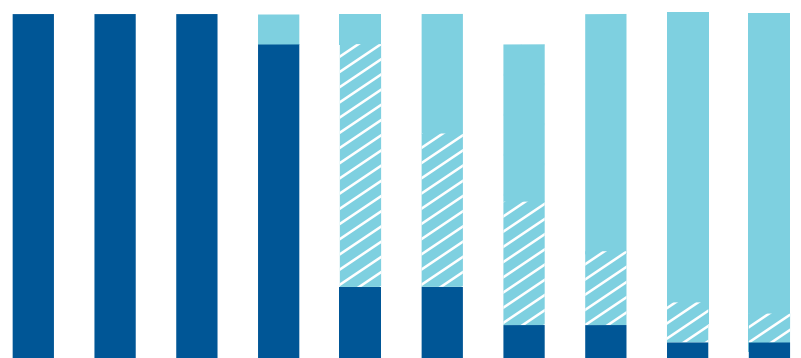
**3 MILLION**  
KILOMETRES/YEAR  
IN WATER TRUCK TRAFFIC  
**ELIMINATED**



## THE EVOLUTION OF OUR WATER USE

■ FRESH WATER  
■ RECLAIMED WATER  
■ RECYCLED WATER

2008 → 2017



### WATER USED IN OPERATIONS

**2008** = **100%**  
FRESH WATER

**2018** = **OVER 98%**  
RECYCLED WATER