



Groundbirch and AIR

Protecting the air we all breathe is important. Part of being a good neighbour and responsible operator means we continuously work to manage emissions and limit our impact on the environment and air quality.

 **10**
YEARS 2008-2018
GROUND BIRCH



REDUCING OUR IMPACT

- Groundbirch has a greenhouse gas (GHG) energy management plan with several emissions reduction projects and plans, each with various stages of maturity.
- Since 2014, we have been replacing diesel with natural gas in our drilling and completions operations, leading to a 28% reduction in GHG emissions.
- In 2016, Groundbirch converted its Saturn and Montney gas plants to electric power, reducing emissions by about 150 kilotonnes each year.
- Switching to B.C. hydro-electric power has reduced the direct emissions of the Saturn gas plant by approximately 90%.
- A new well pad design, introduced in 2018, includes electric-powered valve actuators to reduce methane emissions from the wellsite.
- In 2018, we successfully completed a field trial running valve actuators using fresh air from a compressor instead of methane from the well. We plan to implement this actuator conversion on numerous existing well pads over the next five years to reduce methane emissions.

- Our pipelines are typically prebuilt which minimizes the need for flaring during well start-up. Though flares do have continuous pilot flames, no continuous flaring takes place at Groundbirch.
- We ensure our operations are compliant with provincial and federal regulations to protect air quality. This includes the management of, and improvements to, emissions testing programs, equipment maintenance and controls, and data reporting.
- We have set an internal target for our GHG intensity and Groundbirch is meeting this target.

PROTECTING AIR QUALITY

- Shell supported the development of the Northeast Air Zone, a rigorous air monitoring program established by the B.C. Ministry of Environment and run by an independent third-party. The airshed approach is widely used across Western Canada and benefits both our operations and the local community by providing greater transparency and making real-time air quality information publicly available online.
- Several continuous air quality monitoring stations are located near Fort St. John, Taylor and Dawson Creek, B.C. These stations measure substances like sulphur dioxide, hydrogen sulphide, and particulate matter, as well as meteorological conditions, such as wind speed, wind direction, and temperature.




AIR ONSHORE OPERATING PRINCIPLE

SHELL CONDUCTS ITS OPERATIONS IN A MANNER THAT **PROTECTS** AIR QUALITY AND **CONTROLS** FUGITIVE EMISSIONS AS REASONABLY PRACTICABLE.



100% CHEMICAL INJECTION
PUMPS UPGRADED
 FROM **PROPANE** TO
SOLAR POWER



GAS PLANT ELECTRIFICATION
EMISSIONS REDUCTION
 EQUAL TO 
~37,500 CARS/YR

NO
 CONTINUOUS FLARING

GROUND BIRCH EMISSIONS INTENSITY

