

SAFE, RELIABLE FLIGHTS PRODUCING ACCURATE RESULTS

Microdrones has been flying the mdMapper1000DG advanced aerial mapping solution at the White Birch Paper mill in Quebec City for three years, providing a safer, more cost-effective way for the company to measure wood chip piles.

by Renee Knight

Every three months, a team from Microdrones flies the mdMapper1000DG over the wood chip piles stored outside the White Birch Paper mill in Quebec City, providing the mill with valuable information about their inventory.

The mill transforms these wood chips into cardboard paper, making it vital for company leaders to know exactly how much volume they have in each pile, Microdrones Canadian Sales Manager Sebastien Long said. Before they started working with Microdrones about three years ago, this was a dangerous, time-consuming task that was performed using traditional surveying methods.

Now, a process that once took a few days to complete only takes a few hours, and there's no longer a need for workers to walk around the heavy machinery in the area or to climb on top of the wood chip piles—which is a lot like trying to walk on mounds of sand—to collect the necessary data.

“This is safer, faster and we get a better data set,” Long said. “The numbers we get are more accurate than what they used to get from surveying. In the past, they'd take

images of the piles and convert that into 3-D. With the drone, they can get better coverage of the surface than someone walking the pile and taking a rating here and there, every 6 or 12 feet. The drone covers 100 percent of the pile and we're able to give them accurate data of the volume and their inventory.”

Why Microdrones

The mill is located in the middle of a city and near an international airport, so when the team decided to invest in a drone for inventory management, they knew the system they chose had to be safe and reliable—they couldn't risk it getting away from the pilot, or failing during the middle of a flight.

“They wanted to make sure they were flying with a company that was serious on every level,” Long said. “When a large company like White Birch is flying something in the air, they have to make sure it's reliable at all costs. That's one of the strengths of Microdrones. We have a highly reliable platform.”

After reliability, accuracy was the next top consideration, Long said. The system had to provide at least the same level of accuracy as the manual surveys, a benchmark the Microdrones solution had no trouble reaching and surpassing.

The Advantage of DG

White Birch paper mill started with the original mdMapper solution, but then moved on to the more advanced mdMapper1000DG drone. This system features direct georeferencing (DG), which means there's no need to lay down multiple ground control points (GCPs) on what is very dangerous terrain, Long said.

“If you use our entry level system or any other sensor or drone on the market, you have to lay down ground control points that help you get the level of accuracy you need. The GCPs help ensure the measurements from the pile are correct and that you can process the data as a volume,” Long said. “When you use DG, you don't have to do that, which saves a lot of time. You also don't have to walk around the piles of wood chips to put the GCPs in place, so it's safer and the results are accurate. You're still using a base station, but it's easy to set up. You can also use a smart target. As long as the target is appearing in the images, you're good to go.”

Using DG also reduces overlap, Long said, leading to faster post processing times after the 200 or so images are taken.

Overcoming Weather Conditions

The mill's city location wasn't the only challenge the Microdrones team had to overcome when taking on this project. They also had to contend with weather, Long said.

Quebec City is known for its harsh winters that come with extremely cold temperatures and plenty of snow, which can make flights a little difficult during that time of year, Long said. The mill is also located near the St. Lawrence River, which often brings heavy winds to the area. Pilots have to consider these conditions when it's time to fly, but they know the robust Microdrones system is built to handle adverse weather.

A Happy Customer

Now that Microdrones handles wood chip pile surveys for White Birch, there's no need for the mill to send workers out to do the job manually. So instead of surveyors coming away with an incomplete picture of the pile volumes, the Microdrones solution stitches the images together to create a 3-D map of the pile, and data from that 3-D model is then brought into volume calculation software to provide the exact volume of every pile on the ground.

“They wanted a solution that was accurate, cheaper and safer for operators on the ground and for the people in the area,” Long said. “We've been able to offer that, and have proven over the last three years that we can provide more accurate data than they ever had in the past.”

About the White Birch Paper Mill

Originally built in 1927, the mill produces newsprint and commercial paper grades and has an annual capacity of more than 250,000 metric tons. White Birch, which was known as the Stadacona Mill until it was purchased in 2004, runs a paperboard machine that produces 45,000 metric tons per year of 100% recycled chip board and specialty paperboard products.

The mdMapper1000DG flies over a wood chip pile at White Birch Paper mill in Quebec City.



Photos courtesy of Microdrones.

Benefits of Using the mdMapper1000DG

- The advanced aerial photogrammetry package allows for a high level of data accuracy
- It covers more ground in one flight
- There's no need for ground control points
- Less people and equipment are necessary for each job
- Jobs take less time, as does post processing
- It can be used for a variety of missions including area mapping, surveying, construction, mining and LiDAR applications