

Nordic Mountain Ski Resort

SURFACE PREPARATION CASE STUDY

WISCONSIN DRY ICE BLASTING PREPS SKI LIFTS PAINTING IN HALF THE TIME OF PREVIOUS METHODS

CONTRACTOR

Wisconsin Dry Ice Blasting

APPLICATION

Removing loose, flaking paint, as well as the oxidization from other areas.

COLD JET SYSTEM

Aero 40

BENEFITS

Workers were able to clean the entire pole and in less than half the time it took to spot grind with the mechanical grinders.



"OUR EXPERIENCE WITH DRY ICE BLASTING IS THAT IT DOES A BETTER JOB OF PREPARING THE BASE, WHICH THEN ALLOWS THE PAINT CREW TO MORE EFFECTIVELY APPLY A PRIMER AND A TOP COAT THAT IS MORE LIKELY TO ENDURE LONGER THAN SIMPLY SPOT GRINDING OR PAINTING OVER OXIDIZED SURFACES."

THE SITUATION

Nordic Mountain in Wautoma, Wisc. has 14 groomed ski trails and tubing runs spread across more than 60 acres of ski-able area on Mt. Morris. The resort's two chair lifts and two rope tows can carry more than 6,000 people per hour up 265 vertical feet, which annually receives 80 inches of snowfall and is also supported by daily snowmaking capabilities designed to create the best possible skiing and snowboarding experience.

THE PROBLEM

From the wet and cold weather in the winter to the heat of the summer, the towers, lifts, chairs, turns and other equipment used to transport skiers, boarders and tubers up Mt. Morris, are constantly exposed to extreme weather conditions all year round. Combined with the wear and tear of regular use during the winter months, and other year-round activities, the damage and oxidization from the sun causes the paint to crack and peel, exposing the equipment's steel and wood surfaces to further damage. In addition, with the constant use, the bearings, cables and wheels along the lifts collect dirt and grease that create a grimy appearance and can inhibit the equipment's performance.

On average, ski resorts need to clean and paint their lifts every three to five years. The actual time is dependent on the weather, elevation to the sun, and by how effective the prior cleaning and painting job was performed. To get the new paint to stick to the surfaces of the towers, terminals and chairs, the loose, peeling and oxidized painted needs to be removed.

"Paint will not adhere to flaking, dirty or oxidized paint, so unless something is done to remove the loose paint, grease or the oxidization from the surface, the new coat of paint will not stick, and the resort may be repainting within a couple of years," said Brian Scheid, founder of High Peaks Chairlift Painting. "There is no secret to an effective, long-term paint job, just a well prepared surface."

Preparing the lifts and other equipment for painting is difficult work, and in the past, the ways to complete the project had been limited. The prep process typically involves workers climbing the towers to remove old



"WE WERE ABLE TO GET ON TOP OF WHEELS, IN CORNERS AND OTHER TIGHT PLACES WITH THE DRY ICE BLASTING SYSTEM THAT HAD NOT PREVIOUSLY BEEN CLEANED, REMOVING LAYERS OF PAINT, GREASE AND DIRT."

paint using mechanical 4.5" grinders. Unfortunately, with grinders, workers cannot clean the entire pole and it is a rather expensive and timely process as workers spot grind while looking for loose paint and rust spots. Even with three workers and spot cleaning, the manual process took upwards of three hours to grind a single tower. The mechanical grinders are not effective at cleaning corners, angled steel, bases of towers and other hard to reach places. Workers also use the grinders and other cleaning solutions to prepare the chair lifts and towers.

"With grinders, we are limited to cleaning what is reachable by hand, and while they do a decent job removing the paint and rust in spots, it does leave behind a residue," added Scheid. "To remove the grease and other dirt, we use a hot power washer. The powerwasher is effective, but will leave some residue and can add additional clean up time. For Nordic, the conditions of the lifts were severe enough that I recommended dry ice blasting in lieu of mechanical grinders and other blasting applications, such as sand blasting, which would have required additional prep work to protect the electric motors, wheels, bearings and cables. This was likely going to be the first time ever that a chairlift would be dry ice blasted. To date, I believe we are the only specific chairlift painting company in the United States using dry ice blasting to clean and prepare chairlifts for painting. I believe it is very effective for the ski industry."

THE SOLUTION

To complete the preparation work, Scheid brought in Wisconsin Dry Ice Blasting, LLC, which uses Cold Jet's dry ice blasting systems to service industrial and commercial companies across North America. Cold Jet's

environmentally responsible systems use high-density dry ice made from reclaimed carbon dioxide as the cleaning medium, and therefore provide a non-abrasive, water-free process that won't damage surfaces or equipment. The dry ice media, blasted using pressurized air at user-controlled speeds, sublimates upon impact with the surface being cleaned, lifting away dirt and contaminants without leaving behind any secondary waste.

"Our experience with dry ice blasting is that it does a better job of preparing the base, which then allows the paint crew to more effectively apply a primer and a top coat that is more likely to endure longer than simply spot grinding or painting over oxidized surfaces," commented Jim Wester, manager of Wisconsin Dry Ice Blasting. "By preparing with dry ice blasting, we can save ski resorts a significant amount of money in painting as the paint will last longer, and we can perform the project with less people, less time and less risk."

"While we were looking at preparing and painting our lifts ourselves, we recognized that there were a lot of intricate parts that needed to be cleaned and the chair lifts had accumulated a lot of grease," stated Rick Schmitz, owner of Nordic Mountain. "Five years before, we had sanded and wire brushed our chairs, but they did not look good. We wanted the painting done right this time so that we would not have to repeat this process in five years. We consider the preparation process the most important part of painting, and that is why we decided to try dry ice blasting."

THE RESULTS

With two people, one up the tower and the other on the ground, Wisconsin Dry Ice Blasting was able to clear the loose, flaking paint, as well as remove the oxidization from other areas. Probably the most important benefit is that with dry ice blasting, workers were able to clean the entire pole, and in less than half the time it took to spot grind with the mechanical grinders. Areas of the towers that had been buried in snow for six months, as well as parts that had not been cleaned before, were able to be blasted with the Cold Jet system. Wester's team was also able to blast the chairs in half the time compared to mechanical grinders, and there was no left over residue.

"We were able to get on top of wheels, in corners and other tight places with the dry ice blasting system that had not previously been cleaned, removing layers of paint, grease and dirt," added Scheid. "Blasting is much quicker; it cleans the entire surface, makes for better paint adhesion; and does not leave behind any secondary waste, which allowed our painters to begin their priming and painting much faster. In the long run, because of the longevity, dry ice blasting will also save Nordic money, and I can also warranty our work using dry ice and higher quality top coat." For Nordic, in addition to having a better paint job, one of the biggest benefits is the appearance of the chairlifts to its customers.

"Dry ice blasting met our expectations, and we are hoping that as a result of the prep work, we won't have to touch up the chairlifts for another 10 to 15 years," said Schmitz. "The lifts look great, and that is extremely important to our customers. You can have your lifts working perfectly, but if the paint is peeling and wearing off, customers can get worried. When they see that the chairs, towers and other equipment are well maintained, there is a sense that everything is being cared for, and they can simply enjoy their experience at our resort."

