CASE STUDY - CONSTRUCTION

Golf Course Cold Weather Drying Project

PROJECT BACKGROUND

In January 2025, a nationwide cold front brought record low temperatures to cities across the United States, putting 175 million Americans under cold weather alerts. The frigid conditions have become a problem for construction job sites across the country, including this golf course project in Pittsburgh. The course experienced a slope failure due to an extremely steep angle and changing moisture conditions; this failure caused structural damage to the course, ultimately compromising the playability and visual appeal of the course. The unstable slope also posed safety hazards to players, staff, and visitors, increasing the risk of injuries. The contractor,Cem-Base, Inc., aimed to repair the slope by building it back up with a more gradual incline. This golf course is set to host a major event this year, making it crucial to stay on schedule.

THE CHALLENGE

The soil from the keyway was removed, but it could not be replaced because the fill was oversaturated and frozen, resulting in very wet dirt. The Cem-Base team faced extremely cold temperatures, dropping under 10 degrees on some mornings. With the upcoming golf season right around the corner, the project had to proceed through the cold weather despite these challenging conditions.

PROJECT OVERVIEW

Golf Course Slip Repair

Construction Drying
Dose Rate: 3%

- Slip repair on a golf course with extreme cold weather conditions.
- Quicklime was utilized on the job site to heat the ground.
- The soil dried rapidly, keeping the project on track despite the frigid temperatures.
- In coordination with our valued partner Cem-Base, Inc.

OUR SOLUTION

Quicklime proved to be the ideal solution as it effectively dried the soil and melted the frost, allowing Cem-Base to continue placing fill. The process involved lifting the soil, insulating and sealing in the heat, and then compacting it. The heat was sealed in to maintain the drying effect. For this project, a 2% quicklime dose rate was initially used. Due to the harsh conditions, an additional 1% dose was necessary. This extra percentage helped generate more heat and allowed the steam to drive off moisture effectively.

IMPLEMENTATION

Quicklime was applied using Cem-Base's state-of-the-art Oshkosh spreader trucks with in-cab digital scales for precise application rates. Once spread, a Wirtgen tiller incorporated the material into the soil at a depth of 12 inches. The process generated significant steam, indicating the quicklime was reacting with moisture in the soil. This exothermic reaction aids in moisture evaporation. Using high-horsepower equipment ensures optimal results and effectiveness in the drying process.

RESULTS

The use of quicklime effectively dried the soil, allowing Cem-Base to stay on schedule and even get ahead despite harsh weather conditions. The ground became very firm after the final lift, indicating the effectiveness of the drying process and giving the crew the green light to move forward with confidence. This preparation ensures that the foundation is solid and stable, ready to support the upcoming construction activities. Even as temperatures dropped below zero on some days, quicklime continued to dry the soil effectively.

This golf course has an exciting lineup of events scheduled for 2025 and is now fully prepared to host them as planned!

LONG LASTING SLIP REPAIR

ACCELERATE PRODUCTION