MINTEK RESOURCES

CASE STUDY

Virginia Solar Farm

PROJECT BACKGROUND

As the need for green energy sources continues to rise, it gives way to a heightened demand for constructing solar and wind farms in rural areas across the country.

This specific project was born when sPower, an AES company, and elected officials of Charles City County, VA came to terms and broke ground on a 340-megawatt solar farm project. The project footprint is 1700 acres with an 800-acre buffer zone at a cost of $415 million. The project is estimated to bring to the county coffers $4.5 million dollars over the 35-year life of the solar farm.

Solar farm development in Virginia got a boost from the Virginia General Assembly with passage of the "Virginia Clean Economy Act". Among other initiatives, the act places escalating mandates on electric companies to produce more energy from environmentally friendly sources, with a goal of 100% renewable energy by 2050.

THE CHALLENGE

A strong road base is needed throughout the solar panel grid formation for both construction access and maintenance access once the solar farm is active. In addition to roads, the solar substation and initial lay down areas for panels and steel posts also require soil stabilization.

PROJECT OVERVIEW

VIRGINIA SOLAR FARM

Construction
Stabilization
Dose Rate: 3%

- sPower and Charles City County, VA agreed to break ground on a new solar farm project
- A combination of cement and Calciment LKD was used on the jobsite to reach the needed strength
- The desired strength was achieved and the project was completed on time!

The initial soil stabilization design was created to use Portland cement, but with low availability of cement impacting its use, the contractor had to consider alternate products. At the suggestion of the geotechnical engineer, it was decided that the contractor should consider Calciment LKD as the stabilization agent.

THE SOLUTION

Given the supply chain issues for both products, it was determined that the contractor should use a combination of both reagents in order to cover more area each day. Field and lab test of this combination proved to be successful, yielding the strengths desired by the geotechnical engineer.

The pozzolans and available lime content in the Calciment LKD along with the Portland cement was the perfect mix of products given the geology of the problematic soils encountered on this site. The result of using the two products together proved better than using cement alone, rendering a better outcome for the contractor and the project owner.

IMPLEMENTATION

Using standard mixing and spreading equipment each product was spread at a dose rate of 3% and mixed into the soil each unto its own. Either natural water present in the soil or applied water was used to activate the products.

RESULTS

The contractor was able to achieve the desired strengths required by the geotechnical engineer and was able to keep the project on time and moving forward within the time frame that was initially set. Without the combination of the two products, strengths would have been lower and construction timetables for the project would not have been met.

Not only did Calciment LKD provide this project with the means to achieve better strengths than initially designed and an on-time completion, but the use of Calciment LKD supports conservation efforts by contributing even more sustainability to an already green project. Success for all parties was achieved!

ACCELERATE PRODUCTION

MINIMIZE SHRINK / SWELL

IMPROVE GEOTECHNICAL PROPERTIES