

# The Element

January 2024



## UPCYCLING SAND TAILINGS ►

As Albemarle builds a more resilient world with people and planet in mind, we value every element involved in our work. At Kings Mountain, this includes sand from previous mining operations; somewhere between 3 and 4 million tons of it.



## DEWATERING AND THE WATER TREATMENT PLANT ►

In preparation to dewater the existing mine pit, Albemarle has constructed a temporary water treatment plant to clean and filter the water before pumping it to South Creek Reservoir for gradual release into Kings Creek.



## MINE ACTIVITIES MAP ►

The Mine Activities Map lets you access details about the current site activities by clicking on highlighted areas of the map. This map will be updated weekly.



## Upcoming Events *Calendar* ►

### YOU'RE INVITED TO AN ALBEMARLE KINGS MOUNTAIN COMMUNITY MEETING

Come meet the Albemarle Kings Mountain team and learn more about the proposed mine project! Attend one of the five upcoming meetings and learn why lithium is important and how you can get involved and stay informed about what's happening at the proposed mine site. An open forum with Albemarle representatives will follow the meetings, providing an opportunity to ask questions and share your ideas. Meeting times, dates and locations include:

**11 a.m., Tuesday, January 30 and  
11 a.m., Thursday, February 1**  
at Bethlehem Baptist Church,  
1017 Bethlehem Road, Kings Mountain, NC

**5:30 p.m., Tuesday, February 6 and  
7:30 a.m., Wednesday, February 7**  
at Kings Mountain YMCA,  
211 Cleveland Avenue, Kings Mountain, NC

**6 p.m., Wednesday, January 31**  
at Kings Mountain High School,  
500 Phifer Road, Kings Mountain, NC

Email [kmcommunity@albemarle.com](mailto:kmcommunity@albemarle.com) for more information.

**More upcoming community events ►**



**Visit the Albemarle Kings Mountain Website ►**



**Scan the QR code**  
*to read more news!*

# Sandy Sustainability: *Upcycling the Historic Kings Mountain Sand Tailings*



View from the exposed sand tailings mound at Kings Mountain. All of the trees and grass growing in the distance are growing on top of additional sand deposits.

If you're not on the beach or golf course, odds are you're not thinking much about sand.

However, as Albemarle pursues our mission of building a more resilient world with people and planet in mind, we must consider every element of the work we do at all our sites globally which, at Kings Mountain, includes sand; somewhere between 3 and 4 million tons of it, to be exact.

How did we end up with a few million tons of sand and why is it so important to our sustainability goals? Scott Hutchins, Business Development Manager with Albemarle can help answer these questions.

When Albemarle acquired the Kings Mountain site from Rockwood Lithium, the company acquired not just the land and the lithium sitting underneath it, but the sand stored on-site as the result of the past 80 years of mining history at the site.

"When I say sand, it's been crushed, it's been ground, it's been wet, screened and it's been washed," explained Hutchins. "It's beautifully uniform. It looks like the sand you'd see when you go out on a golf course."

Tailings refer to the minerals and materials left over when ore, in this case lithium spodumene, is separated from the bedrock that holds the deposits. The minerals that make up the Kings Mountain historic sand tailings had to be ground very finely for the ore to be extracted, resulting in the fine sand.

When extracting the natural resource from the bedrock that holds it, lithium spodumene makes up just 1 to 8% of the mineral profile, meaning that somewhere around 90% of it would otherwise be dug up, crushed, ground into little pieces, and stored on-site indefinitely, taking up space.

"We want to leave a positive legacy at Kings Mountain, and we want to upcycle as much of the material coming out of the site as we can," Hutchins said. "We want to be good neighbors. That's part of the Initiative for Responsible Mining Assurance (IRMA) agreement that we've committed to."

The company was presented with a commercial opportunity, but who needs sand?

"We've spent the better part of the last 12 months sending out samples," Hutchins said. "I don't know how many hundreds of buckets of samples we've sent to everybody we could get in touch with, from tile manufacturers to cement kilns, glass companies, aggregate producers, people looking to make golf courses and filling up sandbags for flood relief; we've looked at everything you can think of."

Of course, the quality and availability of our product are only a part of the selling process, and our commercial team has worked tirelessly to attract customers to this new product.

For Albemarle, the pursuit of operations, where little-to-no byproducts go to waste is critical to the company, in our pursuit to be leaders in the sustainable production of all our products.



Tiles just like the ones pictured here are being manufactured with sand from the Kings Mountain sand tailings.



# New Water Treatment Plant *to Play Crucial Part in Pit Dewatering Process*

In preparation to dewater the existing mine pit—pending an approved permit from the North Carolina Department of Environmental Quality (DEQ)—Albemarle has constructed a temporary water treatment plant (WTP) which will be used to clean and filter the pit's accumulated rainwater before pumping it to South Creek Reservoir for gradual release into Kings Creek.



Treating the pit's water requires a multi-step process to ensure the water is discharged at a higher quality than is currently required by the North Carolina DEQ Class C water body standard.

To begin treatment, water is conveyed by electrical pumps from the pit to the WTP where the water is mixed with an oxidant to remove sulfur. Filters are then used to collect any sediments and elemental sulfur from the oxidation process. Hypochlorite is mixed in to remove ammonia and manganese. Lastly, the water is treated by ultrafiltration to ensure clarity and transferred to a finished water tank before being pumped to South Creek Reservoir which flows naturally into Kings Creek.

The solids collected after the initial filtration and ultrafiltration are non-hazardous, non-reactive materials such as elemental sulfur and dirt. These solids are collected in geobags allowing them to be consolidated and transported to a landfill services site for disposal.



**The treated water will be pumped to South Creek Reservoir at a gradual and controlled rate of 2,000–2,500 gallons per minute on average.**

“We are simply treating concentrated rainwater through the oxidation of sulfide, filtering, and increasing dissolved oxygen,” adds Joey Dean, Group Hydrologist at Albemarle. Dean compares the process to the filters we have in our refrigerators or under our sinks that filter out particulates from the water we use at home. The difference is the addition of non-harmful elements, to increase dissolved oxygen which is important for the protection of aquatic wildlife.

Water quality will be continuously monitored with in-process sensors for pH, clarity, dissolved oxygen, and temperature. There will also be weekly to quarterly sampling along various points in the creek. The dewatering process is anticipated to begin this spring, pending approval of the necessary permits, and expected to last up to 18 months to complete.

## **What About** *Potential Odors?*

The water treatment process was specifically designed for pit dewatering to mitigate odor during the process due to low dissolved oxygen at depth in the pit lake. Project scientists are studying the interaction between the lowering water levels of the pit and how the pit water will mix with rainwater and the atmosphere. We will adjust the treatment strategy to address any odor issues through on-going monitoring of the water levels.

# Project Update *From Kim Hackney, Senior Project Director*

Earlier this month, Albemarle Corporation announced it is taking proactive actions in response to persistently low lithium prices. These actions were carefully considered to help ensure Albemarle's continued success and long-term growth.

As indicated in the announcement and as previously planned, Albemarle is prioritizing the permitting activity for the Kings Mountain mine project for 2024 and continuing our community engagement activities.

Initiating the multi-year mine permitting process, as well as our planned work to dewater the existing mine pit, remain Albemarle's top priorities for Kings Mountain. We anticipate rolling out a full mine plan to the community around mid-year.

The Kings Mountain mine is essential to expanding the nation's ability to secure the lithium we will need in the future. Our commitment to the Kings Mountain facility, mine site, and surrounding communities has not changed.

As always, we welcome your engagement, and we are happy to answer any questions you may have about the project. Visit the Albemarle Community Affairs team at our Project Center located in downtown Kings Mountain, participate in one of our upcoming [mine tours](#), or we'd love to see you at one of the five [upcoming community meetings](#) that we're holding over the next month.

Sincerely,

**Kim Hackney**  
Senior Project Director

## Mine Activities Map



The Mine Activities Map provides updates on what's happening in various locations at the Kings Mountain proposed mine site as we continue to assess potentially resuming mining operations. Select the "[Activities Dashboard](#)" to access details about the current activities by clicking on highlighted areas of the map. This map will be updated weekly, however, activities may change from day to day.

## Mine Tour Video

Join Cindy Estridge, Albemarle Corporation Community Affairs Specialist and a former high school chemistry teacher, as she takes you on a [virtual tour](#) of the legendary Kings Mountain mine site. During the tour, learn more about the mine's rich history, how lithium is mined, and the potential future of this valuable resource in our everyday lives, as well as the role it is playing in the clean energy transition.

Want to take a live tour at the Kings Mountain site? Check out our [latest tour dates and times](#).





# Albemarle's Role *In The Kings Mountain Community*

At Albemarle, we believe that [supporting our partnering communities](#) is part of our culture and part of who we are. The charitable support we provided in 2023 is just one way we express our commitment to ensuring Kings Mountain is a strong, healthy and resilient community.

In 2023, we contributed more than \$350K to support programs focused on education, health and wellness, and cultural initiatives to bring people together for a stronger community.

These partnerships include:

- [The Davidson Association - Kings Mtn.](#) Born out of the historic Davidson School Building that dates back to the 1950s, this organization was created to empower, engage, and impact families and individuals in the Kings Mountain community and surrounding areas.
- [Habitat for Humanity of Cleveland County NC](#), supports building homes, communities, and hope. Through a donation, Albemarle was able to provide lithium-ion battery powered tools for their construction crews and supply some of their build sites with sand tailings from prior mining operations at the Kings Mountain site. Since inception, the organization has built over 30 homes in Cleveland County toward their vision that everyone needs a decent, affordable place to live.
- [NC MedAssist](#) and their efforts to ensure that North Carolina residents don't have to choose between purchasing food or their needed medication. Their Mobile Free Pharmacy provides individuals and families who are in need with free over-the-counter medicine.

Learn more about our [community partnerships](#) in Kings Mountain.







## Upcoming Events *Calendar* ►

### **KINGS MOUNTAIN MINE TOURS** **FEBRUARY 6, 20, AND 28**

The 45-minute tour includes history, geology, and current information on the pre-feasibility studies that have been completed, with plenty of opportunities to ask questions. Tour attendees will meet at the Albemarle Project Center (129 W. Mountain Street), and travel together by van to the mine site. Times vary and registration is required, contact Cindy Estridge at [cynthia.estrIDGE@albemarle.com](mailto:cynthia.estrIDGE@albemarle.com). Be sure to check out our website to get the latest tour dates and times!



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Mountain Website* ►



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