



## FREQUENTLY ASKED QUESTIONS

### Mining Operations

**Q: What will be mined at this site, and why?**

**A:** Zircon is present in the Winokur area, averaging 0.4% of the sand. The zircon is part of the Mission Deposit, an ancient beach sand ridge in Charlton and Brantley counties. Zircon is the main source of the element zirconium, which is used in a variety of applications. Right now, the United States purchases almost all its zirconium products from China and other countries. Extracting zircon from the Winokur area would provide a much-needed American supply of zircon that would be processed further to refine the element zirconium for various uses.

**Q: Who is mining this area?**

**A:** Southern Ionics Inc., a Mississippi-based company, is conducting studies to potentially mine the Mission Deposit, providing a locally extracted source of zircon. Southern Ionics is an innovator and leading manufacturer of specialty and intermediate inorganic chemicals based on aluminum, ammonium, magnesium, sulfur, and zirconium. We employ 235 people at manufacturing, barge terminal, and research & development sites in Alabama, Georgia, Louisiana, Mississippi, Tennessee, and Texas.

**Q: What is zirconium used for?**

**A:** Zircon sand is processed into zirconium oxychloride crystals that go into products for the national defense, medical, and consumer products industries. Zirconium is valuable as a coating on ship propellers, gas turbine blades, and nuclear fuel rods. It is also used in hemodialysis home treatment units for kidney patients. The ceramics industry uses zirconium for color and strength in tiles and other ceramics, and zirconium is in paints and coatings, antiperspirants, artificial joints, and photography.

**Q: Is zircon dangerous?**

**A:** No. Zircon is a safe mineral that exists naturally in the sand as a result of prehistoric geologic shifts that changed the coastline of what is now the Eastern United States.

**Q: Will the zircon be processed onsite?**

**A:** No. The zircon sand be separated from quartz sand and then will be trucked offsite for further refining and processing into zirconium oxychloride crystals for many different uses.

**Q: What is the area to be mined?**

**A:** The proposed operation will produce approximately 13,000 tons of zircon annually from 110 to 120 mined acres owned primarily by timber companies, affecting less than 2,000 acres over the course of 10 to 11 years. Only the upper 10 to 20 feet of surface sand will be disturbed and approximately 97% of the sand will be returned to the mined area for full site reclamation.

**Q: How much of the site will be mined at any one time?**

**A:** The active mining area will include six cells at any one time, affecting an area of approximately 30 acres at a time. At any given time, several cells will cycle through the different phases as the entire process moves through the ore body: the cell that is prepared today is mined a few months later, then refilled with sand tailings and used to help manage water, then graded and replanted a few months after that. From start to finish, activity in a cell will take approximately 6 to 12 months, significantly reducing any potential for long-term ecosystem or habitat disruption.

**Q: What will the mining operations include?**

**A:** After the site has been prepared, operations will take place in several steps:

- Sand is excavated from the recently cleared cell area by track-mounted excavators and hauled by off-road trucks to a portable screening unit.
- Groundwater that flows into the mine pit is pumped to the wet mill canal.
- The sand is screened to remove stumps and other debris, mixed with water, and piped to a wet mill. The wet mill removes zircon and other desirable minerals from the quartz sand using spiral flumes that separate the minerals based on how heavy they are. The wet mill floats in a canal, which allows it to move efficiently and which serves as a reservoir for process water.
- The zircon mineral concentrate is pumped to a stockpile where it is loaded into trucks for processing off site.
- The quartz sand is piped back and discharged into a mined out cell to refill it.
- The process water cycles through other cells to allow suspended organic material and sediment to settle out. The water is then recycled to process more sand.

**Q: When will mining begin?**

**A:** It takes several years to complete the necessary studies and secure the necessary state and federal permits to begin any mining operation. We expect to complete permitting and construction by 2013, with mining beginning by 2014 and continuing for 10 to 15 years.

**Winokur Community**

**Q: Will the mining operation be noisy?**

**A:** The wet mill itself will be electric, creating virtually no noise. Trucks and other heavy equipment will be active at the site during daylight hours. A common complaint associated with construction sites is the backup alarm (or beep) from trucks and other equipment going in reverse. Southern Ionics will train equipment operators to scrape and haul in a loop rather than forward and backward, wherever possible. Southern Ionics equipment operators may also use a belly plan scraper to avoid going in reverse.

**Q: What will be done to keep down dust?**

**A:** Southern Ionics will suppress dust using water trucks to keep the haul roads moist. In addition, the site will be buffered by stands of forest about 100 to 150 feet wide. The trees will help to keep dust from being blown beyond the site.

**Q: Will there be traffic to and from the site?**

**A:** Haul trucks will run between the site and US 301 during daylight hours at about two trucks per hour. The route is planned so that the trucks do not pass neighbors' houses. Trucks will exit the mine site to the west and access US 301 for travel south through Folkston or north to US 82 in Nahunta.

**Q: Will operations take place at night, and if so, how will noise and light be minimized?**

**A:** Southern Ionics will not be actively mining at night, so there will be no excavation or hauling. The wet mill will run 24 hours per day. At night it will process sand that was stockpiled during the day. The wet mill is electric and very quiet. Lighting is being designed to avoid glare outside the mine area.

**Q: Does the site pose any risk to drinking water?**

**A:** Some residents near the mine obtain water from deep and shallow wells. Southern Ionics will install one or more wells in order to provide water for moving the sand through pipelines and separating the zircon in the wet mill. Tests will be performed to determine whether the water table will be lowered at the mine site, but this is usually a very local effect and should not impact nearby wells. No chemicals are proposed to be used in the mining process, so no water quality concerns have been identified.

**Q: How will site safety be provided?**

**A:** The site will be enclosed by fences and locked gates to help keep out trespassers. All workers onsite will be well trained in proper safety procedures to protect themselves and any site visitors.

**Environment**

**Q: How will the environment be protected?**

**A:** Southern Ionics is committed to protecting human health and the environment. We intend to leave no lasting impacts to mined areas, and our goal is to quickly, safely, and thoroughly restore habitats and ecosystems as closely as possible to their original states, recognizing that the area has been affected by timber operations for many years. Current work at the site includes an initial environmental screening to assess baseline conditions, develop an effective water management strategy, and identify any other environmental or operational concerns.

The project team includes consultants and contractors with in-depth experience assessing the environmental impacts and planning impact mitigation measures for mining and other developments in southeastern Georgia. We will diligently work through the regulatory permitting structure, incorporating effective environmental stewardship in project planning to ensure the mining operation meets or exceeds requirements and expectations.

**Q: How will the area's wetlands be protected?**

**A:** The mining plan is being prepared to restrict operations to upland areas and avoid mining in wetlands.

**Q: How will water resources be protected?**

The proposed mining operation is designed to be water-efficient, recycling and recirculating water to minimize the amount needed for processing and avoiding off-site process water discharge. No water will be withdrawn from any natural surface water bodies. Any water needed for processing will be obtained by pumping from the active mine pit, managing stormwater, and withdrawing a small amount (less than 500,000 gallons per day—about as much as a typical golf course uses) from one or more wells. We will apply for a surface water withdrawal permit (for pit dewatering) as well as a groundwater withdrawal permit. The operation is not expected to affect local drinking water sources, and the team is conducting a survey of permitted wells in the area to identify their locations. Because water will be reused onsite, there will be no discharges to a creek or other waterbody.

**Q: How will wildlife be protected?**

**A:** Southern Ionics will coordinate with federal and state agencies to ensure compliance with regulations governing endangered species. Habitat is present in the vicinity of the proposed mine area for the indigo snake, wood stork, gopher tortoise, and several federally protected plants. We are conducting surveys for rare and protected animals and plants to determine if any species or their habitat may be affected by mining, and if so, how such impacts can be avoided or reduced.

**Q: How will the site be reclaimed?**

A mined-out cell that has been refilled with sand is reclaimed by:

- Grading to re-establish the natural topography
- Replacing the stockpiled topsoil
- Adding fertilizer and lime
- Replanting pines

Topsoil that was stripped in advance of mining is stored for less than a year, so seeds, roots, tubers, and live plants survive and re-establish the ground cover when soil is replaced. The original topsoil is then replaced at a 2-foot depth that supports healthy tree growth. The land is replanted according to landowner desires and permit requirements, with trees usually planted during the winter. No open pits will be left behind.

**Economic Benefits**

**Q: How many jobs will be created onsite, and how many of those would be likely to go to local people?**

**A:** The operation is expected to provide 35 to 50 direct jobs and additional supporting subcontractor jobs. Southern Ionics anticipates the work will contribute \$15 million to the state economy annually.

**Q: People come to the Winokur area from other parts of the state to hunt, fish, ride horses, and relax. Will tourism be affected by the mine?**

**A:** The mine is being planned to be an extremely low-impact neighbor to residents and existing hunting, fishing, and other recreational enterprises. The site will be surrounded by a forested buffer, and potential disturbances like noise and dust will be minimized. In general, the mine will be invisible from adjacent properties.

**Q: How long will mining operations continue?**

**A:** Southern Ionics is seeking the appropriate permits, which takes a year or more. If approved, construction would likely begin in late 2013 and the mine would operate for about 10 years.

**Q: Why won't the mine just continue indefinitely?**

**A:** Southern Ionics only plans to mine a small area in the Winokur area. When the accessible zircon deposits have been mined, it will be necessary to close operations. The Mission Deposit extends beyond the proposed mine area, but runs under homes, schools, and businesses so it is not practical to mine in many areas.

**Q: How will the site be reclaimed after mining ends?**

**A:** Southern Ionics is committed to restoring the site to its pre-mining state. Southern Ionics will survey and grade mine tailings (leftover sand) and local topsoil, returning the area to its pre-mining contours. This can be accomplished because only 3% of the total mined volume (essentially the zircon mineral itself) is removed. Topsoil will be stored a very short time, allowing seeds, roots, tubers, and other plants to survive and re-establish the herbaceous

ground cover when the soil is replaced. Tree planting will be conducted according to landowner desires and permit requirements. Trees are usually planted during the winter.

Southern Ionics has reviewed conditions at a reclaimed mine site in Lulaton, as part of the company's commitment to restoring the new site as quickly as possible, and has noted the progress of reclamation at that closed site, applying those observations to further improve reclamation at the Southern Ionics site. Southern Ionics's reclamation plans would include regrading the site to pre-mining contours, replacing the site's original topsoil, planting native trees, and monitoring the site until reclamation has been achieved in keeping with applicable regulations and the company's own stringent standards. Site reclamation would begin within 6 months after mining begins, and would continue beyond site closure.

**Q: What will the site look like after the mine closes?**

**A:** In the years following the end of mining operations, the site will look as it does now, with local pine trees, as well as understory grasses and other species. The pine trees will take some time to grow, just as they do after being harvested by the timber companies in the area, but within 5 years, the trees should be 5 or 6 feet high, and will reach full height within 15 or 20 years.

**Q: Who should I contact if I have additional questions?**

**A:** As work progresses, Southern Ionics will provide updates online at [www.southernionics.com](http://www.southernionics.com), in news outlets, and through meetings with interested individuals and groups. If you have additional questions, please contact Ron Rose, Southern Ionics Director of Mining, at [Mining@southernionics.com](mailto:Mining@southernionics.com).