

26 May 2021

Director Richard E. Dunn  
Georgia Environmental Protection Division  
2 Martin Luther King Jr. Drive, SE  
Suite 1456, East Tower  
Atlanta, Georgia 30334-9000

Dear Director Dunn:

We understand that your agency is reviewing five permits that, if granted, would authorize Twin Pines Minerals LLC, an Alabama mining company, to extract heavy minerals from a ridge that runs along the east rim of the Okefenokee National Wildlife Refuge. Although we are in no position to opine on the ultimate question before you—whether the mine would or would not adversely affect the Refuge—we are sufficiently familiar with the hydrologic complexities of the region that we are compelled to voice our concerns about this mine.

Most of us have experience studying various aspects of the Okefenokee Swamp. I did my doctoral research there in the 1970s on the growth of the cypress forest, and I have returned periodically for other field studies. All of us appreciate the need to preserve and protect iconic natural resources like the Okefenokee, which contributes so much to the recreational economy of South Georgia.

Each of us has extensive experience wrestling with hydrologic problems like the one before your team now. As such, we appreciate how difficult it can be to arrive at satisfactory answers to questions involving groundwater dynamics, especially when you must rely on data gathered by another party.

Although we are not opposed to mining *per se*, it does give us pause when a mine is located close to a water body of any kind, much less one of major recreational and scientific value. Our primary concerns are:

1. Any consolidated soils excavated will become homogenized during the separation process and are likely to lose their capacity to sustain the existing water table;
2. The groundwater recharge rate used to model groundwater flow is too low and improper;
3. It is likely that contaminants liberated by the excavation and processing of the consolidated heavy mineral sand units will impact the water quality in the Okefenokee Swamp;

4. The connectivity of the underlying aquifers is not clearly established.

The hydrology in and around the Okefenokee Swamp is extremely complex. The geographic features underlying the area have been shaped and reshaped dramatically over the past several thousand years by powerful coastal forces. Unless a comprehensive study is performed that takes a hard look at the hydrologic functions of this region, it will be impossible to determine whether the proposed mine, which would be located less than three miles from the Okefenokee, will jeopardize the integrity of the Swamp.

We stand by to offer additional scientific expertise and advice on this issue and urge further studies before action is taken.

Sincerely,



William H. Schlesinger  
James B. Duke Professor of Biogeochemistry and  
Dean, Emeritus

Co-signatories

Ryan Emanuel, Professor of Hydrology, North Carolina State University  
Jack Finn, Professor Emeritus, Department of Environmental Conservation,  
University of Massachusetts Amherst  
Lance Gunderson, Professor and Chair, Department of Environmental Studies,  
Emory University  
Patrick Megonigal, George Mason University, Fairfax, Virginia  
Amy D. Rosemond, Professor of Ecology, University of Georgia  
Avner Vengosh, Professor of Geochemistry and Water Quality, Duke University  
Alicia Wilson, Professor of Hydrogeology, School of the Earth, Ocean &  
Environment, University of South Carolina