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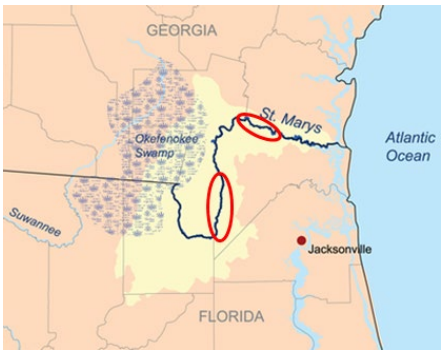
St. Marys Riverkeeper Response to open Public Comment for Twin Pines Mining, LLC permit

St. Marys Riverkeeper (Riverkeeper) offers this summary of comments related to the Twin Pines Minerals application for an open pit mine on Trail Ridge near the St. Marys River and the Okefenokee National Wildlife Refuge (Refuge). Our comments focus on the significant risk of failure for the proposed mine and the confusion of information currently presented to the public.

Riverkeeper is a 501(c)3 private environmental advocacy organization formed in 2016 with the charge to protect the St. Marys River from harm and engage with the community that calls the watershed home. Riverkeeper represents the four counties and many communities sharing stewardship responsibilities for the St Marys River in Georgia and Florida. The St. Marys River is the focus of the organization's work to improve water quality in areas designated as swimmable and fishable; ensure the river thrives for future generations through resiliency projects and community partnerships; promote low-impact development in a fast-growing area; and advocate against industrial threats in our underserved communities.



The St. Marys River forms the border between Southeast Georgia and Northeast Florida. Arising from the Okefenokee Swamp, the river flows 130 miles to the Atlantic Ocean emptying at Cumberland Island National Seashore. Bookended by two national treasures, our St. Marys River is pristine from Swamp to Sea, but a river is only as healthy as its headwaters and tributaries.

In 2022, Georgia DNR declared 2 segments of the St. Marys River safe for recreational use (circled in red) – Deep Creek to Boone Creek and Prospect Landing Road to Little St. Marys. This upgrade means that EPD is committed to protecting these segments for recreation with higher level of acceptable water quality

The risks of the proposed mine could significantly impact the River's watershed ecosystem, which is concerning to many who love this River and want to preserve its beauty into perpetuity. Our concerns:

- **Gauge use for water flow data** – EPD has decided to use the wrong gauge for analysis of water flow out of the Okefenokee swamp to the St. Marys River. The gauge at Moniac should be used, not the gauge at Macclenny. The Macclenny gauge measures flow not only out of the swamp but also includes the watershed flow of an area four times that of the swamp contribution, including several multi-mile long tributaries.
- **Process water management** – With pits at 50' deep, the bottom of the pit is equal to the water level of the swamp. The seepage concerns of the conical depression area could result in lower water levels in the swamp and, in turn, the River during various seasons of the year, particularly the warm drought times of late summer. The swamp is very drought sensitive, losing .87 cubic feet of water per second will triple the time of drought and limit the flow of water into the St. Marys River. Resulting concerns include possibility for more fires, exposure of the peat layers (carbon release), and wildlife migration.
- **Water Reclamation Ponds** – A series of four ponds are proposed cascading down the northeast quadrant of the permit property, each with a large quantity of floating evaporation units and somehow diked for containment. All these ponds are located on the northeast corner of the mine site

and if failure occurs, would drain their turbid waters to the St. Marys River. There is no overflow piping included in the plans. With a site topo change of up to 25 feet from the top pond to bottom pond and with dikes between, the elevation change is not sufficiently addressed. There is no back up plan for water management failure.

- **Twin Pines has identified that they are not seeking a Water Discharge Permit** – Instead they have identified the use of multiple floating evaporators in the ponds, not yet tested or proven viable for a mining application. Concerns include the mechanical continuous functioning of this floating equipment, the power requirements and electrical distribution safety, and the salts and humates that will be dispersed into the atmosphere from the vapor generated. Also, not clear is how many evaporator units will be initially installed as the permit documents identify 55 in the upper pond, yet the legend identifies "167 units to be initially installed" with potential for an additional 25. Does Twin Pines have a redundancy plan for these units should a whole circuit go down? How well do they operate during our humid summers and with the quality of water dispersed?
- **Water Withdrawal** – The proposed two wells for process water, removing potentially 1.44 MGD from the Floridan Aquifer + 1.1 MGD from the surficial aquifer for pit dewatering is concerning due to potential impacts on swamp levels which may result in decreased water flow to the upper St. Marys and the capacity of water storage in the ponds.
- **Bentonite clay layer construction** – Several hydrologists and scientists have questioned whether this application of bentonite horizontally can work due to several concerns including no historical use of bentonite applied horizontally, the care and continuous placement by large equipment with the proposed timing of mining movement. There is no data whether this will affect the water level of the swamp, however the magic fix proposed is to place a layer of bentonite at a height in the pits to simulate the hydraulic properties of the dense black mineral sands removed for mineral processing.
- **Reclamation Plans –** Sadly the proposed mine permit removes all wetlands from the permit property. Although there is intent to replant, with the pit refill plan there would be no organic support for wetland species. The reclamation plan is very basic, minimizing efforts, and shows little care for the impact of mining.
- **Twin Pines Mining experience -** This company has no experience or history in greenfield mining for titanium dioxide ore (ilmenite). With no proven success in mining such, especially near such sensitive and irreplaceable pristine natural environments, the upper St. Marys River and the Okefenokee Swamp, why would they be allowed to experiment mine at this location?
- **Endangered and Threatened Species** - Both the Atlantic and Shortnose Sturgeon are found in the St. Marys River and are protected by the Federal Endangered Species Act. Their habitat is protected by the Federal Clean Water Act. Only 4-6 Sturgeon are caught, measured, PIT tagged, fin clipped for genetic research, and released each survey season. Thanks to a partnership between UGA and USFWS, the sturgeon population in the St. Marys River is being assessed and monitored. After 7 years of data collecting, there is still so much unknown including the estimated population size in the River and the location of spawning grounds.

For all the items discussed above, St. Marys Riverkeeper opposes the Twin Pines Mining Land Use Permit (MLUP) as presented to the State of Georgia, Department of Natural Resources, Environmental Protection Division. The permit information shared to date demonstrates their limited understanding of the site and the method processing options presents a significant risk to the St. Marys River and its headwaters.