United States Department of the Interior

Fish and Wildlife Service
RG Stephens, Jr. Federal Building
355 East Hancock Avenue, Room 320
Athens, Georgia 30601

West Georgia Sub Office
P.O. Box 52560
Ft. Benning, Georgia 31995-2560

Coastal Sub Office
4980 Wildlife Drive
Townsend, Georgia 31331

February 20, 2019

[redacted]

Re: USFWS File Number 2018-0963

Dear [redacted]

The U. S. Fish and Wildlife Service (Service) has considered information provided at the U. S. Army Corps of Engineers (USACE) Regulatory Division's August 7, 2018, Interagency Review Team meeting concerning the proposed Twin Pines Mine Project (project) in Charlton County, Georgia. The project is USACE Joint Public Notice SAS-2018-00554. We recognize that the USACE is responsible for the decision as to what level of National Environmental Policy Act (NEPA) review is required for the project. We opine and recommend that an Environmental Impact Statement be prepared for the proposed project. We provide the following as information on issues to be considered in the decision on the level of environmental review that is appropriate for the proposed project. Our comments are submitted in accordance with provisions of the Endangered Species Act (ESA) of 1973, as amended; (16 U.S.C. 1531 *et seq.*) and the National Environmental Policy Act of 1969, as amended; (42 U.S.C. 4321 *et seq.*).

Project Description Overview

The proposed mine site is approximately 12,000 acres and the area would be mined in 1,000-acre parcels over 30 years. Each 1,000-acre block will be mined at approximately 25-40 acres per month, and backfilled and graded within approximately 30 days following excavation. Planting will occur during the appropriate planting season. The depth of mining across the property will vary based on the resource but should average 50 feet below land surface.

The mining would occur on Trail Ridge. Geologically it is one of the old sand beachfronts that are currently inland and generally parallel to the current beachfront of coastal Georgia. Trail Ridge is a sand ridge and behind, or to the west (inland) of a portion of it is a large depression; the Okefenokee Swamp. Trail Ridge serves as the eastern barrier of the swamp, keeping its waters contained. These beach fronts contain minerals and heavy metals as a small portion of

their volume (3 – 9%). These metals and minerals are valuable and can be mined with current technology.

Issues Overview

The Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508) section 1502.3 'Statutory requirements for statements' includes "As required by sec. 102(2)(C) of NEPA environmental impact statements are to be included in every recommendation or report on proposals for legislation and other major federal actions *significantly affecting the quality of the human environment* (italics added)." The Service cannot definitively say that the mining proposal will significantly *affect* the environment. We have concerns that the proposed project poses substantial risks for significant affect to the environment. Should impacts occur they may not be able to be reversed, repaired, or mitigated for.

Our recommendation is to consider the information that follows in developing a determination as to whether the proposed action meets the definition of the term 'significantly' as described in the terminology section, 1508.27, both in (a) context and (b) intensity.

As you are aware, "context" refers to scope of the proposed action, i.e. nationally, regionally, or locally. With this in mind, the Okefenokee Swamp is listed as one of the seven natural wonders of Georgia (https://en.wikipedia.org/wiki/List_of_the_seven_natural_wonders_of_Georgia_(U.S._state)). Recognizing the need for federal protection, the majority of the Okefenokee Swamp was set aside as National Wildlife Refuge (Refuge) in 1937 by Executive Order. The Refuge was designated a National Natural Landmark in 1974 and a Wetland of International Importance by the Wetlands Convention in 1986. The Okefenokee Wilderness Act of 1974 designated the majority of the Refuge as a National Wilderness Area. The Refuge routinely receives over 600,000 visitors annually, including many international visitors. The effects of the action may be permanent to the entire 438,000 acre swamp and nearby ecosystems on nearby Trail Ridge.

Again, as you are aware, intensity refers to the severity of the impact and has a number of considerations. The regulation has several items in this section; 1508.27(b). Item 3; the unique characteristics of the area. The swamp is of national importance as described above and is the largest National Wildlife Refuge east of the Mississippi River. Item 4; controversial effects of the proposed action. The last time mining was proposed on Trail Ridge adjacent to the Okefenokee Swamp, the Secretary of the Interior visited the Refuge and declared the mining as not compatible with the neighboring ecosystem (the Okefenokee Swamp). Item 5; uncertain effects and unknown risks of the action. Interior Secretary Bruce Babbitt further stated that "You can study this, you can write all the documents in the world, but they [the mining company] are not going to prove beyond a reasonable doubt that there will be no impact." Item 6; establish a precedent.

Though USACE will be primarily considering the impacts of the proposed action from the standpoint of wetlands impacts and compliance with the Clean Water Act; overall, considering the entirety of the project footprint (uplands included) the mine footprint and timeframe are large

and impactful. Future mining projects in adjacent portions of trail ridge could further magnify any environmental impacts by impacting the whole eastern side of the swamp that is adjacent to the sand ridge known as Trail Ridge.

Several state and federally-listed and federal candidate species may be present or occasionally utilize habitat within proposed mine footprint. It is unknown how long the effects of the mining will affect these species and the habitats that are currently on and near the site. The effects to the habitat may be permanent and thereby eliminating the species from the local landscape. These concerns are further described below in the 'ESA Concerns' section.

Hydrologic Alterations

Based on currently available science, it is unknown if the water level and holding capacity of the Okefenokee Swamp will be altered and what impacts this might have on the swamp and surrounding natural features, such as the St. Marys River. Trail Ridge forms a rim or geomorphological "dam" on the east side of the swamp maintaining the hydrology of the swamp. The soil of Trail Ridge has a profile or distinct layers. This gives it water holding and water movement characteristics. The mining is proposed to go an average of 50 feet deep from the ground surface which is below the level of the Okefenokee Swamp depression. After heavy mineral removal the soil will be returned to the site. It will have been homogenized or mixed, and no longer have the same distinct layers it had before mining. This will likely change its properties and the hydrology of the area. We have many questions as to how dramatic and far reaching this change will be (uncertainty). Similarly it is questionable what this hydrologic change will do to the environment (risk).

We expect alteration of surface water drainages associated with soil disturbance on the project site. Destruction of soil profiles that contain and channel surface and sub-surface waters may change the habitat properties of the site. We expect impacts to ground water characteristics including water table elevation, and rate and direction of flow as the soil profile is permanently homogenized ~50 feet deep. We question the potential for increased fire frequency and intensity in the swamp and surrounding private commercial forest associated with the changing hydrology. We question associated issues such as changes to the seasonal water storage capacity of Trail Ridge and disruption of the interaction of surface waters with the natural aquifer and with the waters of the swamp.

Similarly we question the impacts on the swamp and local environment of pumping ground water for mine processes. Disrupted seasonal hydrology can, in turn, influence fire frequency and behavior, ecosystem health, and plant and animal communities, some of which may contain ESA listed species. Vegetation is dependent on soil moisture and is adapted to the sandy soil which allows water to quickly move down from the surface. The depth of the water table, perched water, and subsurface water flows may be disrupted by ground water withdrawal, and thus disrupt hydrology that maintains the natural habitats.

ESA Concerns

The gopher tortoise *(Gopherus polyphemus)*, an ESA candidate species, has been observed on the mine site. The gopher tortoise is considered a keystone species as its burrow can be home for up to 250 other species. After the mining it is questionable if the site will serve as habitat for either species ever again. The soil will have been homogenized and whether its properties (such as temperature, humidity, structure and texture) will be suitable as gopher tortoise habitat is not known. We do not know if the gopher tortoise will find it acceptable for digging burrows.

The federally-threatened eastern indigo snake *(Drymarchon couperi)*, is known to occur on the Trail Ridge, and utilize gopher tortoise burrows during cold winter months and to avoid summer heat. Individual eastern indigo snakes are large with extensive territories (>1000 ac.). Because of the large acreage utilized and the ability to diurnally and seasonally adapt their use of the habitat within each territory, individual snakes are difficult to detect or capture in any given area on any given day. Therefore, documentation of presence and abundance is difficult. Based on conversations with GA DNR personnel, and based on current information, the properties within this project footprint have not been adequately surveyed. Unfortunately, without additional information/analysis and meaningful avoidance and minimization measures, it is possible that the proposed project may result in loss of habitat, individuals, and natural corridors that are utilized by this species. Finally, the Trail Ridge is part of a recovery unit for the indigo snake. Eliminating a significant area of habitat from a recovery unit may eliminate the value of the entire unit, and delay species recovery.

One of our greatest concerns is that, following post-mining restoration activities, tortoises will prematurely attempt to burrow, but the homogenized soils will no longer be structurally capable of sustaining a burrow. If this were to happen, tortoises would dig out of a collapsed burrow, but indigo snakes and other companion species would not. Therefore, individual snakes will become entombed and die, and leave little to no evidence of what has occurred. From our perspective, the mining community, including this applicant, should investigate the following question; 1) once the landscape has been restored following mining, how much time is needed before a) gopher tortoises will resume burrowing, and b) how sustainable are newly created burrows in these post-restoration project areas.

Shallow isolated wetland habitats appear to currently be present in the proposed mining area. Other ESA species: frosted flatwoods salamander *(Ambystoma cingulatum)*, striped newt *(Notophthalmus perstriatus)*(candidate), and the gopher frog (*Lithobates capito*) (candidate with substantial information that listing may be warranted) are found in this habitat. If the mining includes these areas, then soil homogenization would likely cause the hydrology of these isolated ponds to change permanently. This would likely permanently destroy the habitat of these amphibians.

The red-cockaded woodpecker *(Picoides borealis)* is present on the Okefenokee National Wildlife Refuge and the project site may serve as foraging habitat. If the mine runs 24 hours a day and 7 days a week there will likely be site lighting. Light, dust, and noise from operations may disrupt or harass these or other federally listed species.

<u>Other Okefenokee National Wildlife Refuge Related Concerns</u>

The Refuge includes a designated wilderness area. Potential light, noise, dust, smoke, and exhaust pollution from operations may affect the wilderness, Refuge visitors, and natural inhabitants and ecosystems/environments. To quote Bruce Babbitt, former Secretary of the Interior, "Titanium is a common mineral, while the Okefenokee is a very uncommon swamp."

Our Okefenokee Refuge personnel would gladly brief the Colonel and/or other USACE personnel as to the events and intense public controversy that was generated when the DuPont Corporation proposed a similar mining project on Trail Ridge adjacent to the Okefenokee National Wildlife Refuge.

We appreciate the opportunity to provide comments during the early phase of this project. If you have any further questions, please contact our Coastal Georgia Sub Office staff biologist, [redacted] extension [redacted], or myself at [redacted].

Sincerely,

[redacted]

Project Leader

cc: [redacted], EPA, Athens, Georgia
[redacted], GADNR-EPD, Brunswick, Georgia
[redacted], GADNR-WRD, Brunswick, Georgia
[redacted], Okefenokee Refuge Manager, USFWS Folkston, Georgia

From: [redacted]
To: [redacted]
Subject: [Non-DoD Source] FW: EPA comments - Twin Pines Mineral Exploration Work Plan (SAS-2018-00554)
Date: Wednesday, December 12, 2018 1:11:13 PM

Fwd

[redacted]
U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch
c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720
[redacted]

From: [redacted]
Sent: Wednesday, September 5, 2018 8:43 AM
To: [redacted]
Cc: [redacted]
Subject: EPA comments - Twin Pines Mineral Exploration Work Plan (SAS-2018-00554)

Greetings All-

Thank you for forwarding the proposed "Twin Pines Mineral Exploration Work Plan," dated August 23, 2018. I have reviewed the Work Plan and respectfully submit the following comments for your consideration.

The hydrology of the Okefenokee Swamp and adjacent areas of southeast Georgia and northeast Florida has been the subject of numerous investigations, including general overviews and descriptions (e.g. Clarke et al., 1990; Loftin, 1997; Thom et al., 2015), hydrologic models (e.g. Brook and Hyatt, 1985; Brook and Sun, 1987; Loftin et al., 2000; 2001; Mao et al., 2013), evapotranspiration rates (e.g. Yin and Brook, 1992) and the effects of the region's hydrology on its fire regime (e.g. Yin, 1993), to name but a few.

By comparison, the "Previous Studies" section of the Work Plan cites only a single 1989 publication and does so only to generically characterize Trail Ridge itself. The Work Plan further states that "… not much is known regarding the groundwater hydrology (occurrence and movement)" along Trail Ridge. I am concerned that the project proponents may not have conducted a rigorous review of previous efforts to characterize the region's hydrology. While I am admittedly uncertain whether a 30-year old water budget for the Okefenokee Swamp watershed (~Brook and Hyatt, 1985) would provide useful insights into our present endeavor, the volume of published material on the region's hydrology warrants a close review. The present Work Plan leaves me uncertain that such a review has been conducted.

In general, the questions to be answered by the hydrologic investigation are not framed very clearly in the Work Plan. Consequently, the conceptual framework demonstrating how the proposed instrumentation will allow for collection and analysis of data to answer those questions is insufficiently described.

The description of piezometers in the Work Plan fails to include a number of important details. For example, over what interval will the proposed piezometers be screened? Should there not be pairs of nested piezometers screened at different intervals (i.e. some shallow and some deep) in order to assess the potential for groundwater movement upward or downward through any existing impeding soil layers? In addition to piezometers, perhaps shallow monitoring wells screened throughout the upper soil profile would be useful for assessing near-surface soil saturation; not as a substitute for piezometers, but as a compliment to them. Again, I believe the questions to be answered by the investigation need to be clearly and unambiguously described. Only then can the proposed data collection (i.e. instrumentation) and analysis be critically reviewed.

During our conference call on August 7, 2018, I understood a representative of the project team to state that mining will always be at least one mile away from the Okefenokee National Wildlife Refuge boundary, and in fact, excavation would typically not occur within 1,000 feet of the project site's western property boundary. If the latter is true, why can the hydrology study not include an additional array of permanent piezometers east of the western property boundary? Arrays of instrumentation that include not only the ones proposed on the western property (i.e. PZ-1 thru PZ-7), but also eastward and arguably westward of them would better illustrate lateral water movement across the hydraulic gradient between the mining area and the undisturbed areas to the west than a single array of instruments alone.

The Work Plan indicates that Phase II of the proposed hydrologic investigation will include an aquifer pump test to estimate transmissivity and storage in the aquifer system, which "can be used" to model groundwater. I am admittedly not a modeler, but I must nonetheless question whether a distributed model that incorporates both surface water and groundwater might be more applicable here (e.g. GSSHA, GSFLOW, etc.). Considering that our concerns include not only aquifer flow, but also the potential effects of shallow groundwater perturbation on nearby unmined wetlands, these models that incorporate surface soil moisture, groundwater levels, stream and surface water interactions, etc. seem highly applicable. I note too, that the Work Plan states that the proposed aquifer pump test "can be used" to develop a model; not "will be used." I'm not suggesting that the project proponents are trying to play word games with us, but words do have meaning, and those meanings can make a difference in expectations.

Thank you for allowing me to review the draft Work Plan. I look forward to continued discussions about the hydrologic investigation and the project itself more generally. Please do not hesitate to contact me if you have any questions or would like to arrange additional meetings or conference calls.

Regards.

[redacted]

[redacted]
U.S. EPA Region 4 | Ocean, Wetlands & Streams Protection Branch
c/o SESD (F120-6) | 980 College Station Road | Athens, GA 30605-2720
tel [redacted]

References

Brook, G.A. and R.A. Hyatt. 1985. A hydrological budget for the Okefenokee Swamp watershed, 1981-1982. Physical Geography 6(2):127-141.

Brook, G.A. and C.H. Sun. 1987. Hydrological simulation of Okefenokee Swamp upland watersheds using a distributed model: The example of the Black River catchment. Southeastern Geographer 27(2):71-89.

Clarke, J.S., C.M. Hacke and M.F. Peck. 1990. Geology and ground-water resources of the coastal area of Georgia. U.S. Geological Survey, Bulletin 113. Atlanta, GA. 134 pp.

Loftin, C.J. 1997. Okefenokee Swamp hydrology. In K.J. Hatcher (ed), Proc. of the 1997 Georgia Water Resources Conference, March 20-22, 1997. Athens, GA.

Loftin, C.J., W.M Kitchens and N. Ansay. 2001. Development and application of a spatial hydrology model of Okefenokee Swamp. Journal of the American Water Resources Association 37(4):935-956.

Loftin, C.J., W. Rasberry and W.M. Kitchens. 2000. Development of a grid-cell topographic surface for Okefenokee Swamp, Georgia. Wetlands 20(3):487-499.

Mao, X., L. Cui and C. Wang. 2013. Exploring the hydrologic relationships in a swamp-dominated watershed—A network-environ-analysis based approach. Ecological Modelling 252:273-279.

Thom, T.A., K.J. Hunt, and J. Faustini. 2015. Water Resource Inventory and Assessment (WRIA): Okefenokee National Wildlife Refuge, Ware, Charlton, and Clinch Counties, Georgia and Baker County, Florida. U.S. Fish and Wildlife Service, Southeast Region. Atlanta, Georgia. 113 pp. + appendices.

Yin, Z.Y. 1993. Fire regime of the Okefenokee Swamp and its relation to hydrological and climatic conditions. International Journal of Wildland Fire 3(4):229-240.

Yin, Z.Y., and G.A. Brook. 1992. Evapotranspiration in the Okefenokee Swamp watershed: a comparison of temperature-based and water balance methods. Journal of Hydrology 131:293-312.

From: [redacted]]
Sent: Thursday, August 23, 2018 1:00 PM

To: [redacted]>;
[redacted]
Cc: [redacted]
Subject: FW: 000180200804.00 Twin Pines Mineral Exploration Work Plan

[redacted] (USACE), [redacted] (USEPA), and [redacted] (USF&WS),

This email contains a copy of the Work Plan for the hydrogeological evaluation (see attached PDF) on the Twin Pines Minerals project in Charlton County, Georgia. Per the request of the USACE, USEPA, and USF&WS as made during our meeting in Savannah on August 7, 2018, this Work Plan is transmitted on behalf of TTL's Client, Twin Pines Minerals. Upon completion of your reviews, please contact any of the following with TTL if you have questions:

[redacted]

Thank you,

[redacted]
TTL, Inc.
Senior Principal Geologist
Office: [redacted]
Direct: [redacted]
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3516 Greensboro Avenue
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GEORGIA
DEPARTMENT OF NATURAL RESOURCES
WILDLIFE RESOURCES DIVISION

MARK WILLIAMS
COMMISSIONER

RUSTY GARRISON
DIRECTOR

June 12, 2018

[redacted]
Project Professional
TTL
2743-B Gunter Park Drive West
Montgomery, AL 36109

Subject: Known occurrences of natural communities, plants and animals of highest priority conservation status on or near Proposed Loncala Tract Development, Charlton County, Georgia

Dear [redacted]:

This is in response to your request of March 30, 2018. According to our records, within a [redacted]-mile radius of the project site, there are the following Natural Heritage Database occurrences:

(Site Center: [redacted])
Fuirena scirpoidea (Southern Umbrella-sedge) approx. [redacted] of site
***Ursus americanus floridanus* (Florida Black Bear) on site**
2010010 [Southeast Regional Land Conservancy] approx. [redacted] of site
Okefenokee NWR [U.S. Fish and Wildlife Service] approx. [redacted] of site
St. Marys River 2 (0307020403) [SWAP High Priority Watershed] on site

Recommendations:

We have no records of federally or state listed species within the project area. However, there are many areas of Georgia that have not been thoroughly surveyed. Keep in mind that an absence of records may be due to a lack of surveys in the area. We strongly recommend that surveys for species of state and federal conservation concern potentially present in the area be conducted prior to construction. To minimize potential impacts specifically to federally listed species, we recommend consultation with the United States Fish and Wildlife Service.

The soil types present at the project site indicate that suitable habitat may be present for the federally threatened eastern indigo snake (*Drymarchon couperi*) and the gopher tortoise (*Gopherus polyphemus*), a candidate for federal listing. We recommend a complete survey to map the extent of the populations of these species at the project site and development of a mitigation plan before any construction activities take place. In addition to consultation with the United States Fish and Wildlife Service about these species, please contact John Jensen (John.Jensen@dnr.ga.gov) for more information.

Species listed on our website that have no "GA" or "US" status are considered species of concern. Locations of these species are tracked until enough information is gathered to determine if they should be added to the state protected species list or if their populations do not warrant tracking. It is important to consider these species when planning projects. Please let me know if you have any questions regarding Georgia species of concern.

The proposed project site is in a known area of high black bear (*Ursus americanus*) activity. Land conversion at this site will result in significant loss of forested habitat for this species.

The project occurs near the Okefenokee Swamp, a wetland of global ecological significance. Potential wetland and groundwater impacts of a project of this magnitude are an issue of great conservation concern. We recommend consultation with the United States Army Corps of Engineers regarding potential wetland impacts and mitigation requirements.

This project occurs within a high priority watershed. As part of Georgia's State Wildlife Action Plan, 165 high priority watersheds were identified to protect the best-known populations of 168 high priority aquatic species. These watersheds were then prioritized by calculating a Global Significance Score (GSS), which was based upon the number of species identified in each watershed as well as the global rarity of each species. An additional 56 watersheds were designated as "significant" high priority watersheds but were not further prioritized. Significant watersheds contain important coastal habitats, migratory corridors for anadromous species, recent occurrences or critical habitat for federally listed species, or occur in a region of the state where high priority watersheds are poorly represented. Please refer to Appendix F of Georgia's State Wildlife Action Plan to find out more specific information about this high priority watershed (http://georgiawildlife.com/conservation/species-of-concern#high-priority-waters).

We recommend completing surveys for species of concern before any construction or timber harvest begins. We are concerned about aquatic habitats that could be impacted by construction or logging activities. To protect aquatic habitats and water quality, we recommend that all machinery be kept out of streams and wetlands, where applicable. We urge you to use stringent erosion control practices during construction or logging activities. Further, we recommend leaving vegetation intact within 100 feet of streams, which will reduce inputs of sediments, assist with maintaining streambank integrity, and provide shade and habitat for aquatic species.

Please be aware that the type of erosion control material used during construction can impact wildlife. We strongly recommend using natural, biodegradable materials such as 'jute' or 'coir'. Mesh strands should be movable, as opposed to fixed. Use of plastic fencing frequently leads to wildlife entrapment and death.

Disclaimer:

Please keep in mind the limitations of our database. The data collected by the Nongame Conservation Section comes from a variety of sources, including museum and herbarium records, literature, and reports from individuals and organizations, as well as field surveys by our staff biologists. In most cases the information is not the result of a recent on-site survey by our staff. Many areas of Georgia have never been surveyed thoroughly. Therefore, the Nongame Conservation Section can only occasionally provide definitive information on the presence or absence of rare species on a given site. Our files are updated constantly as new information is received. **Thus, information provided by our program represents the existing data in our files at the time of the request and should not be considered a final statement on the species or area under consideration.**

If you know of populations of highest priority species that are not in our database, please fill out the appropriate data collection form and send it to our office. Forms can be obtained through our web site (http://georgiawildlife.com/conservation/species-of-concern#rare-locations) or by contacting our office. If I can be of further assistance, please let me know.

Sincerely,

[redacted]
Environmental Review Biologist

Data Available on the Nongame Conservation Section Website

- Georgia protected plant and animal profiles are available on our website. These accounts cover basics like descriptions and life history, as well as threats, management recommendations and conservation status. Visit http://georgiawildlife.com/conservation/species-of-concern#rare-locations.

- Rare species and natural community information can be viewed by Quarter Quad, County and HUC8 Watershed. To access this information, please visit our GA Rare Species and Natural Community Data Portal at: http://gakrakow.github.io/natels/home.html.

- Downloadable files of rare species and natural community data by quarter quad and county are also available. They can be downloaded from: http://gakrakow.github.io/natels/natural-element-locations.html.