PERMIT NO. 1099-049-0011-B-01-0
ISSUANCE DATE:

GEORGIA
DEPARTMENT OF NATURAL RESOURCES

ENVIRONMENTAL PROTECTION DIVISION

Air Quality Permit

In accordance with the provisions of the Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq and the Rules, Chapter 391-3-1, adopted pursuant to and in effect under that Act,

Facility Name:	**Twin Pines Minerals, LLC – Charlton County**
Facility Address:	**9806 Hwy 94** **St. George, Georgia 31562 Charlton County**
Mailing Address:	**2100 Southbridge Parkway, Suite 540** **Birmingham, AL 35209**
Facility AIRS Number:	**04-13-049-00011**

is issued a Permit for the following:

Construction and operation of a mineral sands processing plant to produce mineral concentrates of titanium, staurolite, and zircon, including the construction and operation of three dryers DY01, DY02, and DY04, two reheaters RH01 and RH02, two wet scrubbers SB01 and SB02, and two baghouses DC01 and DC03.

This Permit is conditioned upon compliance with all provisions of The Georgia Air Quality Act, O.C.G.A. Section 12-9-1, et seq, the Rules, Chapter 391-3-1, adopted and in effect under that Act, or any other condition of this Permit.

This Permit may be subject to revocation, suspension, modification or amendment by the Director for cause including evidence of noncompliance with any of the above; or for any misrepresentation made in Application No. 27362 dated December 20, 2019; any other applications upon which this Permit is based; supporting data entered therein or attached thereto; or any subsequent submittals or supporting data; or for any alterations affecting the emissions from this source.

This Permit is further subject to and conditioned upon the terms, conditions, limitations, standards, or schedules contained in or specified on the attached **11** pages.

STATE OF GEORGIA
CONSTITUTION
WISDOM
JUSTICE
MODERATION
1776

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Jeffrey W. Cown, Director
Environmental Protection Division

1. General Requirements

1.1 At all times, including periods of startup, shutdown, and malfunction, the Permittee shall maintain and operate this source, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on information available to the Division which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection or surveillance of the source.

1.2 The Permittee shall not build, erect, install or use any article, machine, equipment or process the use of which conceals an emission which would otherwise constitute a violation of an applicable emission standard. Such concealment includes, but is not limited to, the use of gaseous diluents to achieve compliance with an opacity standard or with a standard that is based on the concentration of a pollutant in the gases discharged into the atmosphere.

1.3 The Permittee shall submit a Georgia Air Quality Permit application to the Division prior to the commencement of any modification, as defined in 391-3-1-.01(pp), which may result in air pollution and which is not exempt under 391-3-1-.03(6). Such application shall be submitted sufficiently in advance of any critical date involved to allow adequate time for review, discussion, or revision of plans, if necessary. The application shall include, but not be limited to, information describing the precise nature of the change, modifications to any emission control system, production capacity and pollutant emission rates of the plant before and after the change, and the anticipated completion date of the change.

1.4 Unless otherwise specified, all records required to be maintained by this Permit shall be recorded in a permanent form suitable for inspection and submission to the Division and shall be retained for at least five (5) years following the date of entry.

1.5 In cases where conditions of this Permit conflict with each other for any particular source or operation, the most stringent condition shall prevail.

2. Allowable Emissions

2.1 The Permittee shall comply with all applicable provisions of the New Source Performance Standards (NSPS) as found in 40 CFR 60 Subpart A - "General Provisions" and 40 CFR 60 Subpart LL – "Standards of Performance for Metallic Mineral Processing Plants," for the operation of this metallic mineral processing plant. The provisions of 40 CFR 60 Subpart LL are applicable to the following affected facilities in this metallic mineral mine: each crusher and screen in open-pit mines; each crusher, screen, bucket elevator, conveyor belt transfer point, thermal dryer, product packaging station, storage bin, enclosed storage area, truck loading station, truck unloading station, railcar loading station, and railcar unloading station at the mill or concentrator.
[40 CFR 60 Subpart A and 40 CFR 60.380]

2.2 The Permittee shall not cause to be discharged into the atmosphere from an affected facility any stack emissions that:
[40 CFR 60.382(a)]

a. Contain particulate matter in excess of 0.05 grams per dry standard cubic meter (0.022 grains per dry cubic foot).

b. Exhibit greater than 7 percent opacity, unless the stack emissions are discharged from an affected facility using a wet scrubbing emission control device.

2.3 On and after the 60th day after achieving the maximum production rate at which the affected facility will be operated, but not later than 180 days after initial startup, the Permittee shall not cause to be discharged into the atmosphere from the affected facilities any process fugitive emissions that exhibit greater than 10 percent opacity.
[40 CFR 60.382(b)]

2.4 The Permittee shall not burn fuel containing more than 2.5 percent sulfur, by weight, in any fuel burning sources at this facility, unless otherwise specified by the Director.
[391-3-1-.02(2)(g)2.] [Vault GA-002-EL, 02/10]

2.5 The Permittee shall not cause, let, suffer, permit, or allow any emissions from any fuel-burning equipment which:

a. Contain fly ash and/or other particulate matter in amounts equal to or exceeding 0.5 pounds per million BTU heat input.
[391-3-1-.02(2)(d)2.(i)] [Vault GA-001-EL, 02/10]

b. Exhibit visible emissions, the opacity of which is equal to or greater than 20 percent except for one six minute period per hour of not more than 27 percent opacity.
[391-3-1-.02(2)(d)3.] [Vault GA-001-EL, 02/10]

3. Fugitive Emissions

3.1 The Permittee shall take all reasonable precautions to prevent fugitive dust from becoming airborne from any operation, process, handling, and transportation or storage facility. The opacity from any fugitive dust source shall not equal or exceed twenty percent. Reasonable precautions that should be taken to prevent dust from becoming airborne include, but are not limited to, the following:
[391-3-1-.02(2)(n)] [Vault GA-003-EL, 02/10]

a. Use, where possible, of water or chemicals for control of dust in the demolition of existing buildings or structures, construction operations, the grading of roads or the clearing of land;

b. Application of asphalt, water, or suitable chemicals on dirt roads, materials, stockpiles, and other surfaces that can give rise to airborne dusts;

c. Installation and use of hoods, fans, and fabric filters to enclose and vent the handling of dusty materials. Adequate containment methods can be employed during sandblasting or other similar operations;

d. Covering, at all times when in motion, open-bodied trucks, transporting materials likely to give rise to airborne dust; and

e. The prompt removal of earth or other material from paved streets onto which earth or other material has been deposited.

4. Process & Control Equipment

4.1 The Permittee shall burn only propane in the three dryers DY01, DY02, and DY04.
[391-3-1-.03(2)(c)]

4.2 The maximum production rate of HMC Dryer No. 1 and No. 2 (DY01 and DY04) shall not exceed 18 dry tons per hour and 157,680 dry tons of mineral sands during any twelve consecutive months. The Permittee shall record and maintain records of the dry tons of mineral sands processed.
[391-3-1-.02(6)(b)1. and 391-3-1-.03(2)(c)]

4.3 The maximum production rate of the Zircon Dryer (DY02) shall not exceed 3 dry tons per hour and 25,054 dry tons of mineral sands during any twelve consecutive months. The Permittee shall record and maintain records of the dry tons of mineral sands processed.
[391-3-1-.02(6)(b)1. and 391-3-1-.03(2)(c)]

4.4 The maximum production rate of Electric Reheater No. 1 and No. 2 (RH01 and RH02) shall not exceed 8 dry tons per hour and 72,270 dry tons of mineral sands during any twelve consecutive months. The Permittee shall record and maintain records of the dry tons of mineral sands processed.
[391-3-1-.02(6)(b)1. and 391-3-1-.03(2)(c)]

4.5 The maximum production rate of the Mineral Process and Conveying Equipment (EU009 and EU010) and the Transfer and Processing Fugitive Emission Points (EU011) shall not exceed 32 tons per hour and 280,320 dry tons of mineral sands during any twelve consecutive months. The Permittee shall record and maintain records of the dry tons of mineral sands processed.
[391-3-1-.02(6)(b)1. and 391-3-1-.03(2)(c)]

4.6 Routine maintenance shall be performed on all air pollution control equipment. Maintenance records shall be in a form suitable for inspection or submittal to the Division and shall be maintained for a period of five years from date of entry.
[391-3-1-.02(6)(b)1 and 391-3-1-.03(2)(c)]

4.7 The Permittee shall operate the wet scrubbers SB01 and SB02 and baghouses DC01 and DC03 at all times when any production process(es) served by the said control devices are in operation.

4.8 The Permittee shall maintain an inventory of baghouse filter bags such that an adequate supply of bags is on hand to replace any defective ones.
[391-3-1-.02(6)(b)1 and 391-3-1-.03(2)(c)]

5. Monitoring

5.1 The Permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the change in pressure of the gas stream through the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±250 pascals (±1 inch water) gauge pressure and must be calibrated on an annual basis in accordance with manufacturer's instructions.
[40 CFR 60.384(a)]

5.2 The Permittee shall install, calibrate, maintain, and operate a monitoring device for the continuous measurement of the scrubbing liquid flow rate to the wet scrubber. The monitoring device must be certified by the manufacturer to be accurate within ±5 percent of design scrubbing liquid flow rate and must be calibrated on at least an annual basis in accordance with manufacturer's instructions.
[40 CFR 60.384(b)]

5.3 Once each day, or portion of each day of operation, the Permittee shall perform a check for visible emissions from all baghouses and inspect emissions units for mechanical problems or malfunction. For any observation of visible emissions, mechanical problems, or malfunctions, the Permittee shall take corrective action and reinspect the equipment to verify that no visible emissions exist and that any mechanical problems or malfunctions have been corrected. The observations and corrective actions shall be recorded in a log and maintained in a condition suitable for inspection by, or submittal to, the Division.
[391-3-1-.02(6)(b)1 and 391-3-1-.03(2)(c)]

6. Performance Testing

6.1 The Permittee shall cause to be conducted a performance test at any specified emission point when so directed by the Division. The following provisions shall apply with regard to such tests:

a. All tests shall be conducted and data reduced in accordance with applicable procedures and methods specified in the Division’s Procedures for Testing and Monitoring Sources of Air Pollutants.

b. All test results shall be submitted to the Division within sixty (60) days of the completion of testing.

c. The Permittee shall provide the Division thirty (30) days prior written notice of the date of any performance test(s) to afford the Division the opportunity to witness and/or audit the test, and shall provide with the notification a test plan in accordance with Division guidelines.

d. All monitoring systems and/or monitoring devices required by the Division shall be installed, calibrated and operational prior to conducting any performance test(s). For any performance test, the Permittee shall, using the monitoring systems and/or monitoring devices, acquire data during each performance test run. All monitoring system and/or monitoring device data acquired during the performance testing shall be submitted with the performance test results.

6.2 Within 60 days after achieving the maximum production rate at which an affected facility will be operated, but no later than 180 days of the initial startup of the affected facility, the Permittee shall conduct performance tests to determine compliance with the applicable emission standards in Conditions 2.2 and/or 2.3 as follows:
[40 CFR 60.386(b)]

a. Method 5 or 17 shall be used to determine the particulate matter concentration. The sample volume for each run shall be at least 1.70 dscm (60 dscf). The sampling probe and filter holder of Method 5 may be operated without heaters if the gas stream being sampled is at ambient temperature. For gas streams above ambient temperature, the Method 5 sampling train shall be operated with a probe and filter temperature slightly above the effluent temperature (up to a maximum filter temperature of 121°C (250°F)) in order to prevent water condensation on the filter.

b. Method 9 and the procedures in 40 CFR 60.11 shall be used to determine opacity from stack emissions and process fugitive emissions. The observer shall read opacity only when emissions are clearly identified as emanating solely from the affected facility being observed. A single visible emission observer may conduct visible emission observations for up to three fugitive, stack, or vent emission points within a 15-second interval. This option is subject to the following limitations:

i. No more than three emission points are read concurrently;

ii. All three emission points must be within a 70o viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three points; and

iii. If an opacity reading for any one of the three emission points is within 5 percent opacity of the application standard, then the observer must stop taking readings for the other two points and continue reading just that single point.

6.3 To comply with Condition 7.3, the Permittee shall use the monitoring devices in Conditions 5.1 and 5.2 to determine the pressure loss of the gas stream through each scrubber and scrubbing liquid flow rate at any time during each particulate matter run, and the average of the three determinations shall be computed.
[40 CFR 60.386(c)]

7. Notification, Reporting and Record Keeping Requirements

7.1 The Permittee shall submit written notification of startup to the Division within 15 days after such date. The notification shall be submitted to:
Mr. Sean Taylor
Stationary Source Compliance Program
4244 International Parkway, Suite 120
Atlanta GA 30354

7.2 During the initial performance test of each wet scrubber SB01 and SB02, and at least weekly thereafter, the Permittee shall record the measurements of both the change in pressure of the gas stream across the scrubber and the scrubbing liquid flow rate.
[40 CFR 60.385(b)]

7.3 After the initial performance test of each wet scrubber SB01 and SB02, the Permittee shall submit semiannual reports to the Division of occurrences when the measurements of the scrubber pressure loss (or gain) or liquid flow rate differ by more than ±30 percent from the average obtained during the most recent performance test. The reports shall be postmarked within 30 days following the end of the second and fourth calendar quarters.
[40 CFR 60.385(c) and (d)]

8. Special Conditions

8.1 At any time that the Division determines that additional control of emissions from the facility may reasonably be needed to provide for the continued protection of public health, safety and welfare, the Division reserves the right to amend the provisions of this Permit pursuant to the Division's authority as established in the Georgia Air Quality Act and the rules adopted pursuant to that Act.

8.2 The Permittee shall calculate and pay an annual Permit fee to the Division. The amount of the fee shall be determined each year in accordance with the "Procedures for Calculating Air Permit Application and Annual Permit Fees."

8.3 The Permittee shall keep at the permitted facility the originals or complete copies of this Air Quality Permit and any subsequent Amendments to it.

Attachment A – Equipment List

Emission Source Code	Emission Source Description
Wet processes listed in 40 CFR Part 60 Subpart LL (no emissions)	
Storage Bins	
SU004	Surge Bin
Screens	
	Trash Screen
	Oversize protection screen
Wet processes listed in 40 CFR Part 60 Subpart LL (no emissions)	
WCV01	Trommel Oversize Conveyor
W2BN01	Surge Bin - Top
W1BN01	Surge Bin - Bottom
WSB01	Rotary Trommel Screen
WSC01	Trommel Underflow Screen
WSC03	Rougher RC Concentrate Screen
WHP09	Trommel Underflow Hopper
WHP10	Trommel Underflow Slimes Hopper
WHP01	Tailings Transfer Hopper
WHP02	Primary Cyclone Feed Hopper
WHP04	Rougher RC U/F Hopper
WHP06	Cleaner RC Feed Hopper
WHP05	Concentrate Hopper
WHP07	Tails Hopper
WHP18	HMC Hopper
WHP11	WCP HMC Spirals Feed Hopper
WHP12	WCP HMC Secondary Spirals Feed Hopper
WHP13	WCP HMC Scavenger Spirals Feed Hopper
WHP14	WCP Scavenger Circuit Rougher Spirals Feed Hopper
WHP15	WCP Scavenger Circuit Spirals Feed Hopper
WHP16	WCP Scavenger Circuit Cleaner Spirals Feed Hopper
WHP19	Primary HMC Hopper
WHP20	Scavenger Circuit HMC Hopper
WHP17	WCP Spirals Tailings Hopper
WHP22	HMC Cyclone O/F Hopper
Point Sources Subject to 40 CFR Part 60 Subpart LL	
Dryers	
DY01C	HMC Dryer No. 1 (Combustion Emissions)
DY02C	Zircon Dryer (Combustion Emissions)
DY04C	HMC Dryer No. 2 (Combustion Emissions)
DY01	HMC Dryer No. 1 (Process Emissions)
RH01	Secondary HTS Feed Reheater No. 1 (Electric)
RH02	Secondary HTS Feed Reheater No. 2 (Electric)

DY02	Zircon Dryer (Process Emissions)
DY04	HMC Dryer No. 2 (Process Emissions)
Bucket Elevators	
BE10	Titanium HTS Feed Bucket Elevator
BE12	Titanium Product Bucket Elevator No. 1
BE13	Titanium Product Bucket Elevator No. 2
BE07	Staurolite Circuit Feed Bucket Elevator
BE08	Staurolite Product Bucket Elevator No. 1
BE09	Staurolite Product Bucket Elevator No. 2
BE01	Primary HTS Bucket Elevator 1
BE02	Primary HTS Bucket Elevator 2
BE03	Zircon HTS Bucket Elevator
BE04	Zircon Bagging Bucket Elevator
BE05	Zircon Product Bucket Elevator No. 1
BE14	Zircon Product Bucket Elevator No. 2
Conveyor Belts	
CV01	HMC Dryer Feeder Conveyor No. 1
CV25	HMC Dryer Feeder Conveyor No. 2
Storage Bins (Baghouse Controlled)	
BN04	Secondary HTS Overflow Bin
BN08	Zircon HTS Overflow Bin
BN09	Zircon Bagging Surge Bin
BN16	Staurolite Circuit Feed Surge Bin
BN18	Titanium HTS Feed Surge Bin
BN12	Titanium Sample Bin No. 1
BN23	Titanium Sample Bin No. 2
Product Bins	
BN10	Zircon Product Bins (3)
BN13	Staurolite Product Bins (3)
BN14	Titanium Product Bins (3)
Screens	
SC01	HMC Trash Screen
Product Packaging Stations	
H001	Zircon Bagging Facility Bag Handler
H002	Staurolite Bagging Facility Bag Handler
H003	Titanium Bagging Facility Bag Handler
Fugitive Sources Subject to 40 CFR Part 60 Subpart LL	
Emits Inside Building	
BN11	Staurolite Sample Bin No. 1
BN22	Saurolite Sample Bin No. 2
HP60	Staurolite Rer HMC Transfer Hopper
KB01	HMC Trash Screen O/S Kibble
HP02	Zircon Spirals Feed Hopper
HP10	MSP Tail Hopper
BX04	Zircon Filter Feed Hopper Feed Well

HP04	Zircon Filter Feed Hopper
HP03	Zircon RC Feed Hopper
HP65	Zircon IRMS HMC Transfer Hopper
Emits Outside Building	
HP01	HMC Feed Hopper No. 1
HP63	HMC Re-slurrying Hopper
HP62	HMC Feed Hopper No. 2
SC05	HMC Re-slurrying trash screen
CV07	HMC Re-slurrying Feeder
HP50	HMC Re-slurrying Transfer Hopper
Loading Areas	
	Titanium Loading Area
	Staurolite Loading Area
	Zircon Loading Area
Units not Subject to 40 CFR Part 60 Subpart LL	
Chutes	
CH05	HMC Dryer Feeder Conveyor Head Chute
CH12	HMC Tube Conveyor Transition Chute
CV17/CH17	Ilmenite Product Tube Conveyor Transition Chute
CH61	Titanium Dryer Conveyor Head Chute
CH60	HMC Re-slurrying trash screen oversize Chute
CH66	Rer Transfer Hopper Feed Chute
CH06	HMC Dryer Feed Transition Chute
CH04	HMC Dryer Screw Feed Chute
CH07	HMC Dryer Discharge Transition Chute
CH15	Primary HTS MDS Transition Chute
CH16	Secondary HTS Bucket Elevator Feed Chute
CH39	Staurolite Circuit Feed be Feed Chute
CH31	Zircon HTS Bucket Elevator Feed Transition Chute
CH19	Zircon HTS Bucket Elevator Feed Chute
CH32	Zircon Bagging Bucket Elevator Feed Transition Chute
CH20	Zircon Bagging Bucket Elevator Feed Chute
CH25	Zircon Bagging Facility Feed Transition Chute
CH08	Zircon Filter Cake Discharge Chute
CH09	Zircon Filter Cake Transition Chute
CH22	Zircon Dryer Feed Chute
CH009	Zircon Dryer Discharge Transition Chute
CH18	Zircon Product Bucket Elevator No. 1 Feed Chute
CH59	Zircon Product Bucket Elevator No. 2 Feed Chute
CH39	Staurolite Circuit Feed Bucket Elevator Transition Chute
CH40	Staurolite Circuit Feed Bucket Elevator Feed Chute
CH41	Staurolite Product Bucket Elevator No. 1 Transition Chute
CH43	Staurolite Product Elevator No. 1 Feed Chute
CH44	Staurolite Product Bucket Elevator No. 2 Feed Chute
CH64	Staurolite Bagging Facility Feed Transition Chute

CH47	Titanium HMC Dryer Feed Transition Chute
CH48	Titanium Dryer Screw Feed Chute
DY04a	Titanium Dryer Screw Feeder
CH52	Titanium HTS Feed Bucket Elevator Transition Chute
CH50	Titanium HTS Feed Bucket Elevator Feed Chute
CH52	Titanium HTS Feed Bucket Elevator Transition Chute
CH50	Titanium HTS Feed Bucket Elevator Feed Chute
CH56	Titanium Product Bucket Elevator No. 1 Transition Chute
CH58	Titanium Product Bucket Elevator No. 1 Feed Chute
CH57	Titanium Product Bucket Elevator No. 2 Feed Chute
CH65	Titanium Bagging Facility Feed Transition Chute
Units not Subject to 40 CFR Part 60 Subpart LL (Continued)	
Tube Conveyors	
CV03	HMC Tube Conveyor
CV04	Primary HTS MDS Tube Conveyor
CV05	Zircon Product Tube Conveyor
CV06	Staurolite Circuit Tube Conveyor No. 1
CV21	Staurolite Circuit Tube Conveyor No. 2
CV16	Staurolite Circuit Tube Conveyor No. 3
Samplers	
SA01	MSP Head Feed Sampler
SA02	MSP Tails Sampler
SA04	Zircon Product Sampler
SA05	Zircon Shipping Sampler
SA03	Staurolite Product Sampler
SA30	Staurolite Shipping Sampler
SA34	Titanium HTS Feed Sampler
SA31	Titanium Product Shift Sampler
SA32	Titanium Shipping Sampler
Distributors	
DR01	Primary HTS Distributor
DR07	Secondary HTS Feed Reheater Distributer
DR03	Zircon Spirals Feed Distributor
DR08	Zircon HTS Distributor
DR02	Secondary HTS Feed Distributer
DR09	Ilmenite Product Sampler Bypass Distributor
DR04	Zircon Product Distributor No. 1
DR18	Zircon Product Distributor No. 2
DR11	Staurolite Circuit Feed Distributor
DR12	Staurolite Product Distributor No. 1
DR13	Staurolite Product Distributor No. 2
DR19	Titanium HTS Head Feed Distributor
DR16	Titanium Product Distributor No. 1
DR17	Titanium Product Distributor No. 2

DR10	Zircon Bagging Bucket Elevator Distributor
Tundishes	
TD01	Zircon RC Tundish
TD02	Scrubber U/F Tundish
TD04	Titanium Dryer Dust Scrubber U/F Tundish
Kibbles	
KB04	Zircon Product O/F Kibble
KB02	Secondary HTS MIDS Rejects Kibble
Others	
SP01	Zircon Spirals
RX01	Zircon Reflux Classifier
SY05	Titanium HMC Stockpile
FE03	HMC Dryer Screw Feeder
FT02	Zircon Filter
FE05	Zircon Dryer Screw Feeder
Not Emission Units	
Fans	
FN12	Titanium Bagging Fan
FN01	HMC Dryer Burner Fan
FN05	Dryer Dust Scrubber Extraction Fan
FN02	Zircon Dryer Burner Fan
FN11	Staurolite Bagging Fan
DY04d	Titanium Dryer Burner Fan
FN06	Zircon Bagging Fan
Pumps	
PP49	HMC re-slurrying transfer pump
PP04/05	Zircon Spirals Feed Pump No. 1 and 2
PP10/11	MSP Pumps No. 1 and 2
PP08	Zircon Filter Feed Pump
PP09	Zircon IRMS HMC Transfer Pump
PP13	Zircon Filter Vacuum Pump
PP60	Staurolite Rer HMC Transfer Pump
WT01	HMC Dryer Feeder Conveyor Weightometer
WT04	Zircon Bagging Facility Weightometer
TR40	Monorail No. 16