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ENVIRONMENTAL PROTECTION DIVISION

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NARRATIVE

TO: Hamid Yavari

FROM: Wei-Wei Qiu

DATE: January 25, 2023

Facility Name:	**Guidoni USA Inc.**
AIRS No.:	271-00025
Location:	McRae, Georgia (Telfair County)
Application #:	28621
Date of Application:	November 11, 2022

Purpose of Application

On November 15, 2022, Guidoni USA Inc. submitted revised Application Quality Application No. 28621 proposing to construct and operate a facility for manufacturing quartz countertop. This application was accepted into EPD's Expedited Permitting Program on November 22, 2022. The facility is located at 263 East Oak Street, McRae, Telfair County, Georgia, and has been under construction since 2020. The area is attainment for all criteria air pollutants per US EPA (https://www3.epa.gov/airquality/greenbook/anayo_ga.html).

Facility Description

Guidoni USA Inc. will produce various resin-reinforced quartz countertop slabs at this facility. The production consists of raw material receiving and storage, mixing, delumping and pressing, kiln curing, finishing, polishing, packaging, and shipping. The facility also plans to operate a natural gas-fired auxiliary boiler to supply additional heat to the curing kiln and resin tanks, whenever necessary. This facility will operate a diesel emergency generator to serve as a back-up power source for the computers and lighting in case of a power outage at the facility. For detailed facility description, please see the application No. 28621.

Equipment List

The table below lists all the processing units for the proposed facility as described in the Application No. 28621. It is a duplicate of Attachment A to Air Quality Permit No. 3089-271-0025-S-01-0 proposed for the facility.

Emission Units			Associated Control Devices	
Source Code	**Description**	**Installation Date**	**Source Code**	**Description**
SS01 - SS04	Four (4) Vertical Sand Storage Silos	2022	BH01	Baghouse
DS01 - DS02	Two (2) Dosing Sand Day Silos	2022		
WH01 - WH08	Eight (8) Dry Material Weigh Hoppers	2022		

Emission Units			Associated Control Devices	
Source Code	**Description**	**Installation Date**	**Source Code**	**Description**
DT01 - DT03	Three (3) Resin Preparation Day Tanks	2022	n/a	n/a
LH01 - LH02	Two (2) Liquid Weigh Hoppers	2022	RTO1	Regenerative Themo Oxidizer
MX01 - MX02	Two (2) Mixers	2022		
SM201	2nd Syrup Mixer	2022		
RM01	One (1) Ring Mixer	2022		
DL01	One (1) Delumper	2022		
PRS01	One (1) Press	2022		
KL01	One (1) Curing Kiln (5.545 MMBtu/hr, Natural Gas Fired)	2022		
AB01	Auxiliary Boiler (5.5 MMBtu/hr, Natural Gas Fired)	2022	n/a	n/a

* Proposed within current application.

** This "Equipment List" contains information regarding specific emissions points and was created as a reference for certain other Conditions in this Permit (or Permit Amendment). It is not intended to be a comprehensive list of all air pollution sources at this facility and may not include every minor or fugitive emission source. Future minor modifications or additions at this facility may be exempted from permitting by the Georgia Rules for Air Quality Control and may occur without causing this Table to be updated.

Emissions Summary

According to the application No. 28621, emissions of concern from this facility are mainly PM from material handling processes and VOC/HAP from the use of resins and additives.

The facility will use a baghouse to control PM emissions from storage silos, dry material weigh hoppers, and resin preparation day tanks. Post-control potential PM/PM_{10} emissions were estimated by multiplying the baghouse air flowrate, baghouse discharging loading rate (0.01gr./dscf), and 8760 hours per year.

VOC and HAP emissions are estimated by the following information/data:

- Raw material usage that constitutes each countertop slab, i.e., the slap “recipe”;
- Quantity of countertop slab produced per unit time;
- Material Safety Data Sheet (MSDS);
- Applicable emission factors; and
- Overall control efficiency of the VOC/HAP emission control system, i.e., products of the destruction efficiency of the RTO and the capture efficiency of the ventilation system routing VOC/HAP-rich exhaust air stream into the RTO.

In the case of multiple MSDSs per component (for example, one of two types of resin will be utilized in each slab recipe), the data with the highest VOC/HAP content was utilized to represent the worst-case scenario emissions quantification. The emission factor for styrene in the resin is obtained from the closed molding process in AP-42 Table 4.4-2, *Emission Factors for Uncontrolled Polyester Resin Product Fabrication Processes*. Emissions for all other VOC-containing components were conservatively estimated by assuming that 100% of the VOC components will be emitted. A regenerative thermal

oxidizer (RTO) will be used to control the VOC and HAP emissions from quartz countertop manufacturing processes involving the use of VOC/HAP-containing materials, especially resins. According to the application No. 28621, the destruction efficiency of the RTO for VOC and HAPs was obtained from vendor as 97% by weight. The capture efficiency of each VOC/HAP capture system feeding VOC/HAP-rich exhaust air streams to the RTO was assumed 100% by weight in the application No. 28261. Therefore, each capture system shall be constructed and operated as a "Permanent Total Enclosure" and meet the requirements of EPA Method 204. For detailed facility description, please see the application No. 28621.

Estimated Facility-Wide Potential & Actual Emissions
ton per year (tpy)

Pollutant	Potential Emissions	Actual Emissions[1]
$PM/PM_{10}/PM_{2.5}$	7.3	1.6
NO_x	5.08	1.2
SO_2	0.07	0.02
CO	4.12	0.94
VOC	19.62	4.48
Max. Individual HAP	7.29	1.66
Total HAP	7.38	1.68
Total GHG (if applicable)	5,665	1,293

[1] Assuming actual operating time was 8 hours per day, 5 days per week, and 50 weeks per year (2,00 hours per year).

Regulatory Applicability

Depending on the nature of the process units/emission sources, the PM and visible emissions from the facility are subject to applicable PM and opacity limits under Georgia Rules (e) and (b) or (d). The facility is expected to comply with these PM and opacity limits due to the nature of the production processes and the use of baghouse to reduce PM emissions as necessary.

All fuel burning process units at this facility, including the curing kiln and the auxiliary boiler, will only burn natural gas and propane. Georgia Rule (g) applies to all of them and limits the sulfur content of fuel firing the dryer to no more than 2.5% by weight. Since the sulfur content in commercial natural gas is substantially below 2.5% by weight, those fuel burning process units are expected to comply with Rule (g).

Georgia Rule (n) will regulate fugitive emissions from this facility and limit the fugitive emissions to less than 20% opacity. The facility shall implement various applicable measures and precautions as feasible to comply with Rule (n).

Burning only natural gas and propane, all the fuel burning equipment at this facility will be exempted from requirements of 40 CFR Part 63, Subpart JJJJJJ per 40 CFR 6311195.

The 80 HP stationary emergency diesel generator/engine is subject to 40 CFR Part 60, Subpart IIII, *"Standards of Performance for Stationary Compression Ignition Internal Combustion Engines"* and 40 CFR Part 63, Subpart ZZZZ, *"National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines"*. Per 40 CFR 63.6590(c), the emergency generator/engine shall comply with 40 CFR Part 63, Subpart ZZZZ by complying with the applicable requirements under 40 CFR Part 60, Subpart IIII.

40 CFR Part 60, Subpart IIII requires the stationary emergency diesel generator/engine to be certified by US EPA for compliance with the applicable emission standards and other requirements for new nonroad compression ignition engines. The Permittee shall also run the generator with diesel fuel that has a maximum sulfur content of 15 ppm (0.0015% by weight) and either a minimum cetane index of 40 or a maximum aromatic content of 35% by volume. The facility shall maintain the emergency generator/engine according to manufacturer's emission-related written instructions, change only those emission-related settings that are permitted by the manufacture, and meet the applicable requirements of 40 CFR Part 1068, over the entire life of the generator.

As an emergency power generating unit, the annual operating time of the 80 HP stationary emergency diesel generator/engine is limited to 500 hours. The facility shall only operate the emergency generator when electric power from the local utility is not available.

Permit Conditions

Air Quality permit No. 3089-271-0025-S-01-0 was proposed for the construction and operation of the quartz countertop manufacturing facility proposed in the application No. 28621.

Conditions 1.1 thru 1.5 of this permit are standard/template conditions containing general permitting requirements.

Conditions 2.1 and 2.2 are vault standard conditions incorporating respectively the applicable PM and visible emissions limits in Rules (e) and (b).

Condition 2.3 establishes facility-wide HAP emission limits to allow this facility to remain as a synthetic minor source regarding to Title V and NESHAP/112(g) rules and avoid being subject to these rules.

Condition 2.4 establishes facility-wide VOC emission limits to allow this facility to remain as a synthetic minor source regarding Title V rules and avoid being subject to the Title V rules and/or PSD/NSR.

Condition 2.5 limits the facility to burn natural gas and propane exclusively in all fuel burning units such boilers/water heaters, thermal heaters and curing ovens at this facility. This operational limitation allows these sources to be exempted from requirements of 40 CFR Part 63, Subpart JJJJJJ. It also facilitates these sources to comply with the applicable PM and visible emission limits under Rules (b), (c) and/or (d).

Condition 2.6 subjects the auxiliary boiler to the applicable requirements under Georgia Rule (d) for fuel burning equipment.

The 500-hour per year operating time limit and operating scenario requirement in Condition 2.7 allow the 80 HP stationary emergency diesel generator/engine to remain as an emergency power generating unit under pertinent SIP rules.

Conditions 2.8, 2.9 2.10 and 2.11 contain applicable emission, operating and other pertinent requirements for the 80 HP stationary emergency diesel generator/engine under NSPS Subparts A and IIII, and under NESHAP Subpart ZZZZ.

Condition 3.1 is a template condition to ensure the facility to comply with the fugitive emission reduction measures and limits under Georgia Rule (n).

Condition 4.1 is a template condition ensuring the proper maintenance and therefore the function of all air pollution control equipment at this facility.

Condition 4.2 is a standard condition for maintaining the proper function of the baghouse, and for minimizing PM emissions.

Conditions 4.3 and 4.4 establishes the operating requirements for the RTO and the VOC/HAP emissions Captur/ventilation systems feeding the RTO. Their proper function ensure the facility comply with the 10/25 tons per year HAP and the 100 tons per year VOC emission limits in Conditions 2.3. and 2.4, then allow the facility to remain a synthetic minor source under pertinent Title V, PSD/NSR and NESHAP rules.

Condition 4.5 incorporates the applicable operating requirements for the 80 HP stationary emergency diesel generator/engine under NSPS Subpart IIII.

Condition 5.1 requires the facility to monitor the RTO's combustion temperature which is critical for destructing VOC and HAP emissions routed by process ventilation systems to the RTO.

Condition 5.2 and 5.3 establish the monitoring and maintenance requirements for baghouses. These requirements ensure the proper function of the baghouses and therefore the compliance with the applicable PM and visible emissions.

Condition 6.1 is a standard/template condition incorporating standard performance testing requirements when applicable.

Conditions 6.2 and 6.3 establish the requirements for conducting an initial performance test and repeating tests on the RTO. Both are currently required by the Division's Industrial Source Monitoring Unit.

Condition 6.4 requires the Permittee to verify if all the ventilation/VOC/HAP emission capture systems feeding the RTO qualify and are operated as "Permanent Total Enclosures" with 100% capture efficiency, as assumed in the VOC/HAP emission estimation included with the Application No. 28261.

Condition 6.5 specify the methodology to be used in the emission performance test required in Conditions 6.2, 6.3 and 6.4.

Condition 7.1 is a standard notification condition for new sources. Conditions 7.2 through 7.7 contain the monthly recordkeeping and reporting requirements for VOC and HAP emissions from the facility. These requirements ensure the compliance with the VOC and HAP emission limits in Conditions 2.3 and 2.4.

To sure the compliance with the annual operating time limit in Condition 2.7, Condition 7.8 require the facility to record the annual operating time of the 80 HP emergency diesel generator.

Condition 8.1 is a standard/template condition for the Division to amend if necessary, this permit pursuant to the Division's authority as established in the Georgia Air Quality Act.

Condition 8.3 is a standard condition requiring on-site keeping of originals or copies of the permit and permit amendments.

Toxic Impact Assessment (TIA)

According to the application No. 28261, none of potential emission rates of the toxic air pollutants involved exceeded its minimum emission rate (MER) included with EPD's *Guidance for Ambient Impact Assessment of Toxic Emissions.* Therefore, no TIA is required for any of those toxic air pollutants emitted from this facility.

Summary & Recommendations

Guidoni USA Inc. submitted expedited Air Quality Application No. 28621 proposing to construct and operate a facility for manufacturing quartz countertop. The facility is considered a synthetic minor source for VOC and HAP emission and located within Southwest District (Albany Office).

In conclusion, I recommend issuing the proposed Air Quality Permit No. 3089-271-0025-S-01-0 prepared to accommodate the construction and operation of the facility mentioned above. Application and expedition permitting fee of $7,000 were paid on November 18, 2022. Public Advisory for the application expired on December 9, 2022. The 30-day Public Notice expired on xx, 2023.