

Bureau of Air Quality Synthetic Minor Construction Permit

Silfab Solar 7149 Logistics Lane Fort Mill, South Carolina 29715 York County

In accordance with the provisions of the Pollution Control Act, Sections 48-1-50(5), 48-1-100(A), and 48-1-110(a), the 1976 Code of Laws of South Carolina, as amended, and South Carolina Regulation 61-62, Air Pollution Control Regulations and Standards, the Bureau of Air Quality authorizes the construction of this facility and the equipment specified herein in accordance with the plans, specifications, and other information submitted in the construction permit application received on June 05, 2023, as amended. All official correspondence, plans, permit applications, and written statements are an integral part of the permit. Any false information or misrepresentation in the application for a construction permit may be grounds for permit revocation.

The construction and subsequent operation of this facility is subject to and conditioned upon the terms, limitations, standards, and schedules contained herein or as specified by this permit and its accompanying attachments.

Permit Number:CP-50000090 v1.0Agency Air Number:2440-0293

Issue Date:

March 1, 2024

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Steve McCaslin, P. E., Director Air Permitting Division Bureau of Air Quality

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RECORD OF REVISIONS		
Date	Description of Changes	

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A. PROJECT DESCRIPTION, EQUIPMENT, AND CONTROL DEVICE(S)

Permission is hereby granted to install and operate a new solar cell and panel production facility in Fort Mill, South Carolina.

A.1 EQUIPMENT

Equipment ID	Equipment Description	Control Device ID	Emission Point ID
MAL1	Module Assembly Lines 1-3	None	General Area Exhaust
MALGCT	Module Assembly Lab and Gel Content Testing	None	General Area Exhaust
CellP1	Phase 1 Cell Manufacturing	SCR1	P1ACID
CellP2	Phase 2 Cell Manufacturing	SCR2	P2ACID
HF-BST-01	Hydrofluoric Acid Storage Tank 1	SCR1	P1ACID
HF-BST-02	Hydrofluoric Acid Storage Tank 2	SCR2	P2ACID
HCL-BST-01	Hydrochloric Acid Storage Tank 1	SCR1	P1ACID
HCL-BST-02	Hydrochloric Acid Storage Tank 2	SCR2	P2ACID
EG1	Emergency Generator 1	None	EG1
Silane	Silane ISO Module MEGC	None	Silane Storage
Storage			2
DFTO1	Direct Fired Thermal Oxidizer	SCR3	P1ACID/P2ACID

A.2 CONTROL DEVICES

Control Device ID	Control Device Description	Pollutant(s) Controlled	Emission Point ID
SCR1	Wet Scrubber/Phase 1 Acid Scrubber (AEX)	HF, HCl	P1ACID
SCR2	Wet Scrubber/Phase 2 Acid Scrubber (AEX)	HF, HCl	P2ACID
SCR3	Venturi Scrubber	PM, PM ₁₀ , PM _{2.5}	P1ACID/P2ACID

B. LIMITATIONS, MONITORING, AND REPORTING	
Condition Number	Conditions
	Equipment ID: All
	Control Device ID: All
B.1	(S.C. Regulation 61-62.1, Section II(E)) This facility is a potential major source for hazardous air pollutants (HAP) emissions. The facility has requested federally enforceable emissions limitations to limit its potential to emit to less than 10.0 tons per year for any single HAP emission and 25.0 tons

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B. LIMIT	ATIONS, MONITORING, AND REPORTING		
Condition Number	Conditions		
	per year for any combination of HAP emissions to avoid Title V and MACT.		
	The owner or operator shall maintain records of all hazardous air pollutants (HAP). These records shall include the total amount of each material used, the HAP content in percent by weight of each material, and any other records necessary to determine HAP emissions. Individual HAP and total HAP emissions shall be calculated monthly, and a twelve-month rolling sum shall be calculated monthly. Facility-wide emission totals must include emissions from exempt activities. Emissions from malfunctions are required to be quantified and included in the calculations. The twelve-month rolling sum shall be less than 10.0 tons for each individual HAP, and 25.0 tons for total HAPs. Reports of the calculated values and the twelve-month rolling sum, calculated for each month in the reporting period, shall be submitted semiannually.		
	An algorithm, including example calculations and emission factors, explaining the method used to determine emission rates shall only be included in the initial report. Subsequent submittals of the algorithm are required within 30 days of the change if the algorithm or basis for emissions is modified or the Department requests additional information.		
	Equipment ID: All		
	Control Device ID: All		
В.2	(S.C. Regulation 61-62.5, Standard No. 4, Section IX) Where construction or modification began after December 31, 1985, emissions from these sources (including fugitive emissions) shall not exhibit an opacity greater than 20%, each.		
	Equipment ID: All		
	Control Device ID: All		
	It has been determined that this facility is subject to S.C. Regulation 61-62.68, Chemical Accident Prevention Provisions, due to in-process storage or use of a regulated substance in quantities above the specified threshold; therefore, the following must be completed:		
	• Submittal of a Risk Management Plan (RMP) to the Environmental Protection Agency (EPA) prior to the date the regulated substance is first present above the threshold quantity in a process.		
В.З	• Compliance with the Risk Management Program prior to the date the regulated substance is first present above the threshold quantity in a process.		
	• Submittal of subsequent revisions/corrections/updates of the RMP in accordance with S.C. Regulation 61-62.68.190 and 68.195.		
	• For Program 1 processes, the owner or operator shall submit along with the RMP the certification statement provided in Section 68.12(b)(4). For all other covered processes, the owner or operator shall submit along with the RMP a single certification that, to the best of the signer's knowledge, information, and belief formed after reasonable inquiry, the information		

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Condition Number	Conditions		
	submitted is true, accurate, and complete.		
B.4	If it is determined by the implementing agency (or other delegated authority) that additional relevant information is needed, this facility will be required to submit the information in a timely manner. Equipment ID: CellP1, CellP2, HF-BST-01, HF-BST-02, HCL-BST-01, HCL-BST-02, DFTO1 Control Device ID: SCR1, SCR2, SCR3		
	All gauges shall be readily accessible and easily read by operating personnel and Department personnel (i.e. on ground level or easily accessible roof level). Monitoring parameter readings (e.g., pressure drop readings, flow rates, etc.) and inspection checks shall be maintained in logs (written or electronic), along with any corrective action taken when deviations occur. Each occurrence of operation outside the operational ranges, including date and time, cause, and corrective action taken, shall be recorded and kept on site. Exceedance of operational range shall not be considered a violation of an emission limit of this permit, unless the exceedance is also accompanied by other information demonstrating that a violation of an emission limit has taken place.		
	Reports of these occurrences shall be submitted semiannually. If there were no occurrences during the reporting period, then documentation shall be submitted to indicate such. Any alternative method for monitoring control device performance must be preapproved by the Department and shall be incorporated into the permit as set forth in S.C. Regulation 61-62.1 Section II.		
	Control Device ID: SCR1, SCR2, SCR3		
	All emissions points, duct work and other locations that are required to be tested, shall be designed and constructed in a manner to facilitate testing in accordance with applicable EPA approved source testing methods; including, but not be limited to, methods specifying test port location and sizing criteria.		
	For any source test required under an applicable standard or permit condition, the owner, operator, or representative shall comply with S.C. Regulation 61-62.1, Section IV - Source Tests.		
B.5	Unless approved otherwise by the Department, the owner, operator, or representative shall ensure that source tests are conducted while the source is operating at the maximum expected production rate or other production rate or operating parameter which would result in the highest emissions for the pollutants being tested. Some sources may have to spike fuels or raw materials to avoid being subjected to a more restrictive feed or process rate. Any source test performed at a production rate less than the rated capacity may result in permit limits on emission rates, including limits on production if necessary.		
	 When conducting source tests subject to this section, the owner, operator, or representative shall provide the following: Department access to the facility to observe source tests: 		

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B. LIMI	TATIONS, MONITORING, AND REPORTING
Condition Number	Conditions
	Sampling ports adequate for test methods;
	Safe sampling site(s);
	Safe access to sampling site(s);
	Other sampling and testing equipment; and Equipment and supplies percessary for safe testing of a source
	Equipment and supplies necessary for sale testing of a source.
	The owner or operator shall comply with any limits that result from conducting a source test at less
	than rated capacity. A copy of the most recent Department issued source test summary letter,
	whether it imposes a limit or not, shall be maintained with the operating permit, for each source that
	is required to conduct a source test.
	Site-specific test plans and amendments, notifications, and source test reports shall be submitted to
	the Department.
	Control Device ID: SCR1, SCR2
B.6	Initial source tests to verify the HCl and HF control efficiency of scrubbers SCR1 and SCR2 shall be
	conducted within 45 days after achieving the maximum production rate or 180 days after startup,
	whichever comes first, and every two (2) years thereafter. The source tests will be used to verify that
	each scrubber's control efficiency is at least 96% for each pollutant.
	Equipment ID: CellP1, CellP2, HF-BS1-01, HF-BS1-02, HCL-BS1-01, HCL-BS1-02, DF1O1
	Control Device ID. SCR1, SCR2
	Operational ranges for the monitored parameters shall be established to ensure proper operation
	of the pollution control equipment. These operational ranges for the monitored parameters shall be
B.7	derived from stack test data, vendor certification, and/or operational history and visual inspections,
	which demonstrate the proper operation of the equipment. These ranges and supporting
	documentation (certification from manufacturer, stack test results, 30 days of normal readings,
	opacity readings, etc.) shall be submitted to the Department within 60 days after the initial source
	tests required by Condition B.6 are conducted. Operating ranges may be updated following submittal
	Equipment ID: CellP1, CellP2, HF-BST-01, HF-BST-02, HCI-BST-01, HCI-BST-02, DFTO1
	Control Device ID: SCR1, SCR2
	The owner or operator shall install, operate, and maintain pressure drop indicators, liquid flow
	meters, and pH meters, on each scrubber module. Each monitored parameter shall be recorded daily
B.8	during source operation. Facilities with automated data collection may collect monitoring data on a
	more frequent basis and calculate the daily average. Readings collected when the source is shutdown
	the Department for an increased frequency/averaging plan prior to using averaging for parametric
	monitoring. The owner or operator shall continue to record daily the calculated monitoring averages
	using the approved increased frequency/averaging plan unless prior approval is obtained from the

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B. LIMIT	ATIONS, MONITORING, AND REPORTING
Condition Number	Conditions
	Department for changing the plan.
	Operation and maintenance checks shall be made on at least a weekly basis. The checks and an corrective actions shall be documented and be submitted semiannually. Each scrubber shall be i place and operational whenever processes controlled by it are running.
	Control Device ID: SCR3
B.9	(S.C. Regulation 61-62.5, Standard No. 3, Section III(I)(1)) Emissions from this source shall not exhibit an opacity greater than 20%, each. This is a State Only requirement.
	Equipment ID: DFTO1 Control Device ID: SCR3
B.10	(S.C. Regulation 61-62.5, Standard No. 3, Section III(I)(2)) Particulate matter emissions from these sources shall not exceed 0.5 lb/10 ⁶ Btu total heat input. The total heat input value from waste and virgin fuel used for production shall not exceed the Btus used to affect the combustion of the waste This is a State Only requirement.
	Equipment ID: CellP1, CellP2, DFTO1 Control Device ID: SCR3
	(S.C. Regulation 61-62.5, Standard No. 4, Section VIII) Particulate matter emissions shall be limited to the rate specified by use of the following equations: For process weight rates less than or equal to 30 tons per hour $E = (F) 4.10P^{0.67}$
B.11	For process weight rates greater than 30 tons per hour $E = (F) (55.0P^{0.11} - 40)$
	Where E = the allowable emission rate in pounds per hour
	P = process weight rate in tons per hour F = effect factor from Table B in S.C. Regulation 61-62.5, Standard No. 4
	 For the purposes of compliance with this condition, the process boundaries are defined as follows: CellP1 and CellP2 - Max Process Weight Rate 0.5 ton/hr
	Equipment ID: CellP1, CellP2, DFTO1 Control Device ID: SCR3
B.12	The owner or operator shall install, operate, and maintain pressure drop indicators and liquid flow meters on the scrubber. Each monitored parameter shall be recorded daily during source operation Facilities with automated data collection may collect monitoring data on a more frequent basis and calculate the daily average. Readings collected when the source is shutdown or not operating may not be used in the calculation. The owner or operator must get approval from the Department for an increased frequency/averaging plan prior to using averaging for parametric monitoring. The owner or operator shall continue to record daily the calculated monitoring averages using the approval form.

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B. LIMITATIONS, MONITORING, AND REPORTING		
Condition Number	Conditions	
	increased frequency/averaging plan unless prior approval is obtained from the Department for changing the plan.	
	Operation and maintenance checks shall be made on at least a weekly basis. The checks and any corrective actions shall be documented and be submitted semiannually. The scrubber shall be in place and operational whenever processes controlled by it are running.	
	Equipment ID: CellP1, CellP2, DFTO1 Control Device ID: SCR3	
B.13	Operational ranges for the monitored parameters shall be established to ensure proper operation of the pollution control equipment. These operational ranges for the monitored parameters shall be derived from stack test data, vendor certification, and/or operational history and visual inspections, which demonstrate the proper operation of the equipment. These ranges and supporting documentation (certification from manufacturer, stack test results, 30 days of normal readings, opacity readings, etc.) shall be submitted to the Department within 60 days after startup. Operating ranges may be updated following submittal to the Department.	

Conditions
Conditions
(40 CFR §61.04(b); 40 CFR §63.9; 40 CFR §63.10) All NESHAP notifications and reports shall be sent to the Department.
(40 CFR §61.04(b); 40 CFR §63.9; 40 CFR §63.10) All NESHAP notifications and the cover letter to periodic reports shall be sent to the United States Environmental Protection Agency (US EPA) as required by the specific subpart.
Emergency engines less than or equal to 150 kilowatt (kW) rated capacity, emergency engines greater than 150 kW rated capacity designated for emergency use only and operated a total of 500 hours per year or less for testing and maintenance and have a method to record the actual hours of use, such as an hour meter, and diesel engine driven emergency fire pumps that are operated a total of 500 hours per year or less for testing and maintenance and have a method to record the actual hours of use, such as an hour meter, have been determined to be exempt from construction permitting requirements in accordance with South Carolina Regulation 61-62.1. (40 CFR 60; 40 CFR 63) If present, these sources shall still comply with the requirements of all applicable regulations, including but not limited to the following: New Source Performance Standards (NSPS) 40 CFR 60 Subpart A (General Provisions); NSPS 40 CFR 60 Subpart IIII (Stationary Compression Ignition Internal Combustion Engines); NSPS 40 CFR 60 Subpart IIII (Stationary Spark Ignition Internal Combustion Engines);

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C. NESHAP (40 CFR 61 AND 40 CFR 63)	
Condition Number	Conditions
	Provisions); and NESHAP 40 CFR 63 Subpart ZZZZ (Stationary Reciprocating Internal Combustion Engines).

D. GENE	RAL FACILITY WIDE
Condition Number	Conditions
D.1	The permittee shall pay permit fees to the Department in accordance with the requirements of S.C. Regulation 61-30, Environmental Protection Fees.
	In the event of an emergency, as defined in S.C. Regulation 61-62.1, Section II(L), the owner or operator may document an emergency situation through properly signed, contemporaneous operating logs, and other relevant evidence that verify:
	1. An emergency occurred, and the owner or operator can identify the cause(s) of the emergency;
	2. The permitted source was at the time the emergency occurred being properly operated;
D.2	3. During the period of the emergency, the owner or operator took all reasonable steps to minimize levels of emissions that exceeded the emission standards, or other requirements in the permit; and
	4. The owner or operator gave a verbal notification of the emergency to the Department within twenty-four (24) hours of the time when emission limitations were exceeded, followed by a written report within thirty (30) days. The written report shall include, at a minimum, the information required by S.C. Regulation 61-62.1, Section II(J)(1)(c)(i) through (J)(1)(c)(viii). The written report shall contain a description of the emergency, any steps taken to mitigate emissions, and corrective actions taken.
	This provision is in addition to any emergency or upset provision contained in any applicable requirement.
	(S.C. Regulation 61-62.1, Section II(O)) Upon presentation of credentials and other documents as may be required by law, the owner or operator shall allow the Department or an authorized representative to perform the following:
	1. Enter the facility where emissions-related activity is conducted, or where records must be kept under the conditions of the permit.
D.3	2. Have access to and copy, at reasonable times, any records that must be kept under the conditions of the permit.
	3. Inspect any facilities, equipment (including monitoring and air pollution control equipment), practices, or operations regulated or required under this permit.
	4. As authorized by the Federal Clean Air Act and/or the S.C. Pollution Control Act, sample or monitor, at reasonable times, substances or parameters for the purpose of assuring

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D. GENERAL FACILITY WIDE

Condition Number	Conditions
	compliance with the permit or applicable requirements.
D.4	(S.C. Regulation 61-62.1, Section II(J)(1)(a)) No applicable law, regulation, or standard will be contravened.
D.5	(S.C. Regulation 61-62.1, Section II(J)(1)(e)) Any owner or operator who constructs or operates a source or modification not in accordance with the application submitted pursuant to this regulation or with the terms of any approval to construct, or who commences construction after the effective date of these regulations without applying for and receiving approval hereunder, shall be subject to enforcement action.

E. EMISSIONS INVENTORY REPORTS - RESERVED

F. **GENERAL RECORD KEEPING AND REPORTING** Condition Conditions Number (S.C. Regulation 61-62.1, Section II(J)(1)(g)) A copy of the Department issued construction and/or operating permit must be kept readily available at the facility at all times. The owner or operator shall maintain such operational records; make reports; install, use, and maintain monitoring equipment or methods; sample and analyze emissions or discharges in accordance with prescribed methods at F.1 locations, intervals, and procedures as the Department shall prescribe; and provide such other information as the Department reasonably may require. All records required to demonstrate compliance with the limits established under this permit shall be maintained on site for a period of at least five (5) years from the date the record was generated and shall be made available to a Department representative upon request. (S.C. Regulation 61-62.1, Section II())(2)) The owner or operator shall submit reports required in this F.2 permit in a timely manner and according to the reporting schedule established through the Department's approved electronic permitting system. (S.C. Regulation 61-62.1, Section II()(2)) All reports and notifications required under this permit shall F.3 be submitted to the Department. (S.C. Regulation 61-62.1, Section II(A)(3)) The owner or operator shall submit written notification to F.4 the Department of the date construction is commenced, postmarked within thirty (30) days after such date. (S.C. Regulation 61-62.1, Section II(J)(1)(c)) For sources not required to have continuous emission monitors, any malfunction of air pollution control equipment or system, process upset, or other equipment failure which results in discharges of air contaminants lasting for one (1) hour or more F.5 and which are greater than those discharges described for normal operation in the permit application, shall be reported to the Department within twenty-four (24) hours after the beginning of the occurrence and a written report shall be submitted to the Department within thirty (30) days. The

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Condition Number		Conditions
	writte	n report shall include, at a minimum, the following:
	1.	The identity of the stack and/or emission point where the excess emissions occurred;
	2.	The magnitude of excess emissions expressed in the units of the applicable emission limitation and the operating data and calculations used in determining the excess emissions
	3.	The time and duration of excess emissions;
	4.	The identity of the equipment causing the excess emissions;
	5.	The nature and cause of such excess emissions;
	6.	The steps taken to remedy the malfunction and the steps taken or planned to prevent the recurrence of such malfunction;
	7.	The steps taken to limit the excess emissions; and,
	8.	Documentation that the air pollution control equipment, process equipment, or processes were at all times maintained and operated, to the maximum extent practicable, in a manner consistent with good practice for minimizing emissions.
	The in Affairs	itial twenty-four (24) hour notification should be made to the Department's local Environmenta s Regional Office.
	The w	ritten report should be sent to the Department.

G. PERMIT EXPIRATION AND EXTENSION		
Condition Number	Conditions	
	(S.C. Regulation 61-62.1, Section II(A)(4) and (5) and S.C. Regulation 61-62.1, Section II(J)(1)(f)) Approval to construct shall become invalid if construction:	
	a. Is not commenced within eighteen (18) months after receipt of such approval;	
	b. Is discontinued for a period of eighteen (18) months or more; or	
	c. Is not completed within a reasonable time as deemed by the Department.	
G.1	The Department may extend the construction permit for an additional eighteen (18) month period upon a satisfactory showing that an extension is justified. This request must be made prior to the permit expiration.	
	This provision does not apply to the time period between construction of the approved phases of a phased construction project; each phase must commence construction within eighteen (18) months	

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G. PERMIT EXPIRATION AND EXTENSION

Condition Number	Conditions
	of the projected and approved commencement date.

H. PERMIT TO OPERATE		
Condition Number	Conditions	
H.1	(S.C. Regulation 61-62.1, Section II(F)(3)) When a Department issued construction permit includes engineering and/or construction specifications, the owner or operator or professional engineer in charge of the project shall certify that, to the best of his/her knowledge and belief and as a result of periodic observation during construction, the construction under application has been completed in accordance with the specifications agreed upon in the construction permit issued by the Department. If construction is certified as provided above, the owner or operator may operate the source in compliance with the terms and conditions of the construction permit until the operating permit is issued by the Department. If construction is not built as specified in the permit application and associated construction permit(s), the owner or operator must submit to the Department a complete description of modifications that are at variance with the documentation of the construction permitting determination prior to commencing operation. Construction variances that would trigger additional requirements that have not been addressed prior to start of operation shall be considered construction without a permit.	
Н.2	(S.C. Regulation 61-62.1, Section II(F)(1)) The owner or operator shall submit written notification to the Department of the actual date of initial startup of each new or altered source, postmarked within fifteen (15) days after such date. Any source that is required to obtain an air quality construction permit issued by the Department must obtain an operating permit when the new or altered source is placed into operation and shall comply with the requirements of this section.	
Н.3	 (S.C. Regulation 61-62.1, Section II(F)(4)(b)) The owner or operator shall submit a written request to the Department for a new or revised operating permit to cover any new or altered source postmarked within fifteen (15) days after the actual date of initial startup of each new or altered source. (S.C. Regulation 61-62.1, Section II(F)(4)(c)) The written request for a new or revised operating permit must include, at a minimum, the following information: A list of sources that were placed into operation; and The actual date of initial startup of each new or altered source. 	

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I. AMBI	I. AMBIENT AIR STANDARDS		
Condition Number	Conditions		
I.1	(S.C. Regulation 61-62.1, Section II(J)(2)) Air dispersion modeling (or other method) has previously demonstrated that this facility's operation will not interfere with the attainment and maintenance of any state or federal ambient air standard. Any changes in the parameters used in this demonstration may require a review by the facility to determine continuing compliance with these standards. These potential changes include any decrease in stack height, decrease in stack velocity, increase in stack diameter, decrease in stack exit temperature, increase in building height or building additions, increase in emission rates, decrease in distance between stack and property line, changes in vertical stack orientation, and installation of a rain cap that impedes vertical flow. Parameters that are not required in the determination will not invalidate the demonstration if they are modified. Variations from the input parameters in the demonstration shall not constitute a violation unless the maximum allowable ambient concentrations identified in the standard are exceeded.		
	The owner or operator shall maintain this facility at or below the emission rates used in the most recent air dispersion modeling (or other method) demonstration submitted to and approved by the Department, not to exceed the pollutant limitations of this permit. Should the facility wish to increase the emission rates used in the demonstration, not to exceed the pollutant limitations in the body of this permit, it may do so by submitting a new demonstration for approval. This condition along with the referenced modeling demonstration will also serve to meet the intent of S.C. Regulation 61-62.5, Standard No. 8, Section II(D). This is a State Only enforceable requirement.		