

**South Carolina Department of Health and Environmental Control
Bureau of Air Quality**

**Response to Comments on Air Quality
Silfab Solar
Fort Mill, York County, South Carolina
Permit No. CP-50000090 v1.0**

The following is the SC Department of Health and Environmental Control Bureau of Air Quality's (SC DHEC or Department) response to the comments made during the formal comment period held August 3, 2023, through November 3, 2023, regarding the draft synthetic minor air quality construction permit for Silfab Solar (Silfab).

The Department Decision, permit, statement of basis, this response document, and a letter of notification are located for viewing at the SC DHEC Columbia office located at 2600 Bull Street, Columbia SC 29201, and on our webpage at www.scdhec.gov/air-quality-permitting-decisions.

Hardcopies of all the above-listed documents, as well as the written comments received can be requested by contacting our Freedom of Information Office at (803) 898-3882.

A public hearing was held by the Department on October 30, 2023, to receive oral and written comments on the proposed project. During the comment period, a total of 413 written and oral comments were received. The Department has reviewed each comment and revised the draft permit where appropriate based on the Department's regulatory authority. The Department received additional comments after November 3, 2023. Individuals submitting comments after the comment period have been added to the notification list, along with those making comments during the open comment period, and will receive notification of the Department decision and response document.¹

The following is a summary of the changes to the draft permit and other actions taken by the Department:

- The Hazardous Air Pollutants (HAP) reporting frequency in Condition B.1 has increased from annually to semiannually.

¹ In responding to comments made during the formal comment period, the Department has also addressed various concerns raised in comments received after the comment period had expired. The Department's acknowledgment of and response to concerns raised in any comments received after the comment period should not be construed as an interpretation by the Department that a response to these comments is legally required.

- The reporting frequency of occurrences of operation outside of operational ranges in Condition B.4 has been increased from annually to semiannually.
- The source (or stack) test condition B.6 has been updated from requiring the initial source tests within 180 days after startup to within 45 days after achieving the maximum production rate or 180 days after startup, whichever comes first. The periodic source test frequency has increased from every five (5) years to every (2) years.
- The requirement for the documentation of operation and maintenance checks in Condition B.8 has been updated from maintaining the records on-site to submitting the records semiannually, in addition to maintaining such records on-site. The condition was also modified, removing the exemption that allowed the process to run during periods of scrubber malfunction or mechanical failure.
- Conditions were added to the permit for the direct fired thermal oxidizer and associated venturi scrubber. The statement of basis was updated accordingly.
- A correction was made to the statement of basis to correct the inequality symbol used in the S.C. Regulation 61-62.68 section.
- An update to the silane storage description was made in the statement of basis to properly identify the type of storage and total amount of that storage in pounds.

1. Expedited Review

There was a comment questioning why this project was accepted into the expedited review program.

Response: Pursuant to S.C. Code Section 44-1-165, the Department has established an expedited review program for entities seeking an air construction permit. This program aims to speed up the permit application process without compromising on the quality of the review process. The review clock is paused whenever additional information or clarifications are necessary to complete the Department's review. The expedited review fee helps the Department fund the position and allocate staff resources to the project.

2. Conditional Major/Synthetic Minor Permits

Comments asked what synthetic minor and conditional major operating permits are.

Response: This project is for a synthetic minor construction permit, which is a construction permit that establishes federally enforceable limits to keep a facility's potential emissions below major source or major modification thresholds, as defined by applicable federal and

state regulations. Following construction, a conditional major operating permit must be obtained by Silfab Solar. A conditional major operating permit is a type of air quality operating permit issued to sources that have established federally enforceable limits to keep their emissions below major source thresholds.

3. Application and Other Information

Comments were received concerning inconsistencies in the application submitted by the facility and draft permit and supporting draft statement of basis, including but not limited to inconsistencies in the volatile organic compound (VOC) and hydrogen fluoride (HF) emission rates, incorrect use of an inequality symbol in the regulation review of S.C. Regulation 61-62.68 in the draft statement of basis, incorrect wording of 40 CFR 60 Subpart Kb in the application, and the failure to include the safety data sheet for HF in the initial application. Some comments also stated questions or concerns about the vetting of information and availability of information to the public.

Response: During the application review process and permit drafting process, additional information or corrections are requested by the Department. The information in the draft statement of basis that went on public notice reflects the updated information that was relied upon for the draft permit.

The permit application and supporting materials were reviewed based on the applicable regulatory requirements and consideration of all technical information provided, as well as comments received. Members of the public may request copies of available materials using applicable Freedom of Information procedures.

A summary of changes to the draft permit and other actions taken by the Department in response to the public comments received during the public comment period were included above.

A comment was received concerning the quantities of VOCs and HAP/TAPs emitted from the process and questioned why emissions are not measured or regulated. Another comment asked for a full list of chemicals used/housed/transported at the site and a full list of toxic by-products. A comment was also received voicing concern for the uncontrolled emissions totals.

Response: A summary of air pollutant emissions from this project is contained in the Project Emissions Table in the statement of basis. The uncontrolled emission rates are the emission

rates without taking into account the removal efficiency of the scrubbers. Controlled emissions rates are the worst-case emissions that can be emitted from the facility with the scrubbers in place, as is required by the permit. Additional information regarding air pollutant emissions can be found in the construction permit application. Emissions were calculated using the material usage in each process line. The safety data sheets (SDSs) for raw materials that could cause an emission of a regulated air pollutant were included in the application. The facility will maintain SDSs of all raw materials used in the process on-site.

VOCs, HAPs, and toxic air pollutants (TAPs) are regulated air pollutants. Many VOCs are also TAPs, and the proposed source underwent a technical review to demonstrate compliance with Standard No. 8, Toxic Air Pollutants. The permit includes limits on individual and total HAPs from the facility processes. HF and Hydrochloric Acid (HCl) emission rates are measured using source (or stack) tests and monitoring – see the Monitoring, Testing, and Compliance section for additional information. The facility can comply with requirements applicable to VOCs and other HAP/TAPs without the use of control devices; therefore, additional testing is not required.

4. Monitoring, Testing, and Compliance

Comments, questions, and suggestions were received regarding the scope and adequacy of Silfab Solar's monitoring, testing, and compliance plans. Some comments raised questions or concerns about self-monitoring and reporting by the facility. Some commenters noted the newness of some of the technologies proposed and urged additional or more frequent testing or monitoring, more electronic or automated monitoring and alerts, and more frequent inspections and maintenance. Comments also raised questions about potential loss of air control efficiency over time and about the possibility that the facility's technology and manufacturing processes could change over the years. Commenters also asked what happens when equipment does not work properly and about penalties for noncompliance.

Response: By utilizing wet acid scrubbers with at least 96% control efficiency for hydrochloric acid (HCl) and hydrogen fluoride (HF), Silfab Solar will control hazardous air pollutant emissions to comply with all applicable state and federal regulations. The scrubbers will be designed to achieve at least 96% control efficiency for HCl and HF, a level at which the facility can show compliance with synthetic minor emission limits. Under this permit, the facility will be responsible for ensuring that a 96% control efficiency is maintained, including through periodic testing and monitoring, and the performance of maintenance and any necessary corrective actions, as discussed below.

To verify the control efficiency of the scrubbers, an initial source test is required within 45 days after achieving the maximum production rate or 180 days after startup, whichever

comes first, and periodic source tests are required every two (2) years after the initial source test. Source tests are conducted with the process operating at full capacity and are performed by a third party with oversight from the Department. As noted above, these initial and periodic source test deadlines reflect a revision to the draft permit based on comments received. In addition, after consideration of comments received, the draft permit has been revised to clarify that processes controlled by scrubbers may not run in the event of scrubber malfunction or mechanical failure.

Pressure drop, liquid flow rate, and pH are three (3) parameters that will be monitored and recorded daily by Silfab Solar staff to ensure that the scrubbers are operating effectively. Operational ranges of each of the monitored parameters will be established to ensure proper operation of the pollution control equipment. The ranges will be derived from source (or stack) test data, vendor certification, and/or operational history and visual inspections which demonstrate the proper operation of the equipment. The ranges are required to be submitted to the Department within 60 days after the initial source tests. Each occurrence of operation outside the operational ranges shall be recorded and maintained on site, including the date and time, cause, and corrective action taken. Reports of these occurrences shall be submitted to the Department semiannually. As noted above, this reporting frequency reflects a revision to the draft permit based on comments received.

Operation and maintenance checks shall be made on at least a weekly basis. The checks and any corrective actions shall be documented and submitted semiannually, as reflected by revisions made to the draft permit. Each scrubber shall be in place and operational whenever processes controlled by it are running.

Silfab Solar is required to 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.

As discussed further below, Silfab Solar is also subject to S.C. Regulation 61-62.68, Chemical Accident Prevention Provisions, which requires development of a chemical Risk Management Plan and compliance with Risk Management Program provisions, to identify hazards, prevent, and minimize the effects of accidental chemical releases. A risk management plan must be submitted by Silfab Solar prior to the date any regulated substance is first present above the threshold quantity. The regulations further require Silfab Solar to periodically

revise and update its risk management plan and hazard analysis in accordance with specified timeframes. The facility must also comply with permit provisions governing timely notification of any emergencies or malfunctions, process upsets, or failures, including steps to minimize emissions and corrective actions.

The monitoring, testing, recordkeeping, and reporting requirements in an air permit are the responsibility of the facility. The facility may perform the requirements of the permit itself or outsource it to a contractor. The reporting and self-certification requirements of the permit are consistent with those applicable to other permitted facilities and are the accepted practice in environmental permitting across the country. The Department will review all compliance information submitted by the facility (or obtained on site) to determine compliance and will take enforcement action against a permitted facility for violations occurring as a result of inaccurate reports or certifications, as appropriate.

The above testing, monitoring, and additional requirements have been carefully considered based on the nature and scope of the facility's operations and emissions and are consistent with or more stringent than with those required by applicable regulations. The Department's regional inspectors will conduct routine, unannounced inspections to verify that the conditions of the permit are being met, as well as additional inspections on a complaint-driven basis. In general, the Department conducts routine inspections of conditional major facilities at least every two years. However, some facilities may be inspected more frequently based on past compliance history. Alleged violations of any permit condition or any applicable state and federal regulation are detailed in the inspection report and would result in the facility being referred to the Department's Bureau of Air Quality's (BAQ) enforcement section. If the Enforcement Section determines that a violation has occurred, enforcement action may be taken requiring corrective action and the possible payment of civil penalties. Penalties are assessed in accordance with the Department's Uniform Enforcement Policy. The Department strongly encourages the public to report any concerns as soon as they are observed so that the Department can investigate and respond to any noncompliance and take enforcement action as needed.

Should the facility at any time wish to change any of its technology or manufacturing processes, it must ensure compliance with all applicable air quality requirements, including applicable permitting requirements. Any changes to the technology or manufacturing processes may require new permit applications or revisions to the air permit. The permit being issued to Silfab Solar authorizes those operations as described in and in accordance with the permit.

A comment was received raising concerns about excess emissions lasting less than one hour.

Response: Excess emissions lasting less than one hour may not be required to be reported to the Department within the twenty-four (24) hour time period required under condition F.5 but would be required to be reported per condition B.5 along with the corrective action taken to minimize emissions. In addition, the chemical accidental release provisions may require additional notification of chemicals subject to the RMP plan.

A comment was received requesting HF concentration testing on incoming HF shipments to demonstrate that HF concentrations are at 49% or less.

Response: Silfab's receiving records for shipments of HF will include the percent concentration. While the permit does not require Silfab to submit these records to the Department, the Department can request the records to verify the HF concentration at any time or during inspections.

5. Air Dispersion Modeling Analysis

Comments were received in regard to the model option choice of urban vs rural.

Response: DHEC and the consultant applied the regulatory version of EPA's AERMOD model code, and the appropriate procedure as prescribed by EPA's "Guideline on Air Quality Models" (consistent with South Carolina DHEC's "Modeling Guidelines for Air Quality Permits") was used to select rural dispersion coefficients for this project. Consistent with the referenced guidelines, land use within the 3 km radius circle around the source was evaluated using a Geographic Information System (GIS) land cover tool. Urban dispersion coefficients should only be used when the total percentage of medium- and high-intensity developed areas land use types within the 3 km area around the facility exceeds 50% (by guideline). Approximately 23% of the 3 km area surrounding the facility was shown to have urban-type characteristics as identified by GIS technology. In this case, the model should use rural dispersion coefficients per guidelines.

Theoretically, the atmosphere over an urban area tends to be more turbulent due to varying surface types and urban heat than over a rural area's more uniform vegetative environment. Thus, the urban coefficients option increases dispersion and turbulence in the model, resulting in lower pollutant concentrations than the rural option concentrations.

DHEC understands that land use continues to change around the facility location with the construction of the new school and as the area continues to grow. With this in mind, DHEC ran the same AERMOD dispersion model using the urban dispersion coefficients option to compare results with results from the rural dispersion coefficients. As expected, the

maximum concentrations decreased from 1.74 $\mu\text{g}/\text{m}^3$ (rural) to 1.39 $\mu\text{g}/\text{m}^3$ (urban) for hydrogen fluoride. Hydrochloric acid emissions model results also show a decrease when applying the urban option from 35.08 $\mu\text{g}/\text{m}^3$ (rural) to 28.92 $\mu\text{g}/\text{m}^3$ (urban). Thus, maximum impacts remain below the applicable hydrogen fluoride and hydrochloric acid standards of 2.05 $\mu\text{g}/\text{m}^3$ and 175 $\mu\text{g}/\text{m}^3$, respectively. Results are summarized in the tables below:

STANDARD NO. 8 - TOXIC AIR POLLUTANTS ANALYSIS - RURAL Option Model Results					
Pollutant	CAS Number	Basis	Maximum Concentration ($\mu\text{g}/\text{m}^3$)⁽¹⁾	Standard ($\mu\text{g}/\text{m}^3$)	% Of Standard
Hydrochloric Acid	7647-01-0	AERMOD	35.08	175.00	20
Hydrogen Fluoride	7664-39-3	AERMOD	1.74	2.05	85

1) The highest 24-hour concentrations are rounded to two decimal places to compare to the standards.

STANDARD NO. 8 - TOXIC AIR POLLUTANTS ANALYSIS - URBAN Option Model Results					
Pollutant	CAS Number	Basis	Maximum Concentration ($\mu\text{g}/\text{m}^3$)⁽¹⁾	Standard ($\mu\text{g}/\text{m}^3$)	% Of Standard
Hydrochloric Acid	7647-01-0	AERMOD	28.92	175.00	17
Hydrogen Fluoride	7664-39-3	AERMOD	1.39	2.05	68

1) The highest 24-hour concentrations are rounded to two decimal places to compare to the standards.

Note: The facility increased the proposed stack height for the acid scrubber stack from 19.7 ft to 70 ft subsequent to the analysis summarized above. Modeling guidance does not require an updated air dispersion analysis for stack height increases due to the fact that better dispersion is expected with higher release heights.

Comments were received about changes in terrain due to the construction of the new school.

Response: National Elevation Dataset (NED) files from USGS are used for source, building, and receptor elevations. DHEC periodically updates NED data sets to maintain up-to-date information. Since maximum impacts occur on the northern property line with significantly

lower concentrations around the location of the new school(s), DHEC does not anticipate that the slight changes in terrain elevations related to grading and the construction of the new school will change the location and magnitude of the maximum modeled concentrations.

Comments were received about the use of 2015 to 2019 weather data versus current weather data.

Response: The AERMOD model requires enough meteorological data to ensure that the worst-case meteorological conditions are adequately represented in the model results. This is typically accomplished by acquiring five consecutive years of NWS meteorological data. The five-year criteria is required to identify worst-case concentrations that should occur during a climatological cycle, including El Nino, La Nina, and other shorter time frame weather patterns that develop. Meteorological data requires extensive quality control procedures to ensure that the data meets the standards necessary to use for air quality modeling application. SC DHEC meteorologists last completed this effort in 2020. At that time, 2019 was the most recent complete year available. Therefore, 2015-2019 was used to process the AERMOD meteorological data sets. The data observed at all surface and upper air stations were considered temporally representative of all locations in South Carolina for the comprehensive state analysis. No significant change in ambient air quality modeling impacts is anticipated with the use of more current meteorological data from the most recent 3 years available (2020-2022). Furthermore, the 2021 meteorological data has already been pre-processed for other reasons and was used to re-model the proposed facility. Using the 2021 meteorological data, the facility impact shows that maximum 24-hour concentrations ($1.53 \mu\text{g}/\text{m}^3$ impact from HF and $30.82 \mu\text{g}/\text{m}^3$ impact from HCl) are below the respective maximum 24-hour concentrations already calculated with the 2015-2019 data.

A comment was received about the use of upper air data that is two hours away.

Response: The AERMET meteorological processor requires full upper air soundings (radiosonde data) representing the temperature profile near sunrise to calculate convective mixing heights during the day. Five years of upper air sounding data is required for the preprocessor model AERMET. The National Weather Service maintains the available upper air sounding data, and very few sites are available across the region.

A statewide meteorological representative analysis was conducted in preparation for the processing of new meteorological data for use in the AERMOD dispersion model. The analysis was conducted to determine which surface and upper air measurement sites should be paired and represent the various areas of the state. This analysis was conducted before

processing the data using the AERMOD dispersion model. Atlanta/Peachtree City (GA), Charleston (SC), Greensboro (NC), and Morehead City (NC) are the only upper air observation locations in Georgia, North Carolina, and South Carolina. Charleston and Morehead City are coastal-type upper air sites and are not representative locations for application to the Rock Hill / Fort Mill area. Due to its closest proximity and similar Carolina Piedmont weather patterns, Greensboro is the most representative upper air site available for this application site.

Furthermore, model concentrations are much more sensitive to differences in surface meteorological data and surface characteristics than the upper air data in the model. For reasons described here, the maximum concentrations calculated by the model are not expected to be significantly different with the use of another nearby upper air data set, and changing the upper air data is not appropriate for this application site.

A comment was received asking what level of operation the model was based upon.

Response: Air dispersion modeling is used to predict pollutant concentrations after a facility has commenced proposed operations so as to demonstrate that the proposed operations would not cause a violation of any applicable air quality standards. The model was run using the maximum allowable controlled emissions rates and based on an assumption the facility operates continuously, 24 hours per day and 7 days per week.

Comments were received asking why the facility will be allowed to store DHEC Class 3 chemicals.

Response: The health-based S.C. Regulation 61-62.5, Standard No. 8 Maximum Allowable Ambient Concentrations (MAAC) accounts for the fact that Class 3 Toxic Air Pollutant (TAP) chemicals are highly toxic. Through the use of more stringent safety factors (as compared to Class 1 and Class 2 chemicals), a more restrictive MAAC is developed for these highly toxic pollutants. As discussed above, the proposed storage of hydrochloric acid and silane above threshold quantities also subjects the facility to the Chemical Accident Prevention Provisions under 40 CFR Part 68 and S.C. Regulation 61-62.68, requiring compliance with applicable risk management program requirements.

A comment was received asking about DHEC's review of the modeling analyses provided.

Response: The air dispersion modeling submitted with the construction permit application was checked, in detail, by a professional meteorologist on DHEC staff to ensure the modeling was set up properly and that all the modeling inputs, including emissions and other source

and facility parameters, were properly entered into the model. The model was then independently executed using completely independent model inputs, meteorology, and terrain to verify the model results. DHEC confirmed that the model was appropriate and verified that operation of the proposed facility as outlined in the permit application is not expected to cause or contribute to the exceedance of any Standard 8 pollutant.

A comment was received inquiring whether it was correct that the facility was exempt from Standard No. 2 based on criteria pollutant emissions being only from emergency generators.

Response: The proposed project's only identified sources of criteria pollutant emissions (*i.e.*, pollutants for which Standard No. 2 apply) are process emissions from cell manufacturing, combustion emissions from the direct-fired thermal oxidizer, and combustion emissions from a 300 HP emergency generator. The Bureau of Air Quality's Modeling Guidelines for Air Quality Permits identifies applicable exemptions from the requirement to submit an air quality analysis (based on air dispersion modeling or other information) for the purpose of demonstrating compliance with ambient air quality standards, including Standard No. 2. Emergency generators operating less than 500 hours/year are exempt from the requirement to submit an air quality analysis. Due to intermittent and infrequent use, emissions from emergency equipment are not expected to interfere with any state or federal air quality regulatory standards. The facility is expected to keep records of operating hours to remain under the 500-hour/year limit. Cell manufacturing and the direct-fired thermal oxidizer combustion emissions are well below applicable emission rate exemption thresholds, per air dispersion modeling guidelines. Emission rate-based exemptions were developed to reduce air dispersion modeling burden for sources that are typically insignificant to ambient air impacts. Additionally, the criteria pollutant emissions for the entire facility are well below the applicable de minimis emission levels for which air quality analysis would typically be required.

A comment was received asking why the predicted HF concentrations were reduced from 88% to 85% of the standard and why the modeled rate was reduced in the modeling summary.

Response: The application was revised by the company's consultant during the review. The DHEC modeler identified that the emission rates modeled from the tanks were inconsistent with those shown in the application. Thus, DHEC required that the report and/or the modeling analysis be corrected for consistency with appropriate justification for any revised emission rates. As part of the revision, Silfab decided to route the tank emissions to the

Phase 1 and Phase 2 scrubbers to control the HCl and HF emissions, instead of emitting directly from the tanks. The revisions to the application provide a slight benefit to the atmosphere due to the control of emissions from the tanks and venting from better dispersive characteristics from the scrubber. As a result of these changes that were made during the review, the maximum modeled HF concentration was reduced from $1.806 \mu\text{g}/\text{m}^3$ (88% of the HF standard) in the original report provided by the consultant to $1.744 \mu\text{g}/\text{m}^3$ (85%) in the revised modeling report and reported as $1.74 \mu\text{g}/\text{m}^3$ in the summary sheet.

A comment was received about the need for an understanding of Hazardous Air Pollutants levels (HF/HCl). The commenter wanted an example that everyday people could understand, by converting microgram per cubic meter ($\mu\text{g}/\text{m}^3$) to parts per million (ppm) or part per billion (ppb).

Response: The conversions for the maximum allowable ambient concentration for each of the modeled toxic air pollutants are as follows: For HF, $2.05 \mu\text{g}/\text{m}^3$ is approximately equal to 0.0025 ppm (or 2.5 ppb). For HCl, $175 \mu\text{g}/\text{m}^3$ is approximately equal to 0.117 ppm (or 117 ppb).

Comments were received in regard to the 1,500 meter property buffer in Figure 5 of the application:

Response: Figure 5 of the application shows a “1,500 meter property buffer” surrounding the proposed facility. The buffer identified in the figure **does not represent an impact area** (emphasis added). The buffer only represents the receptor grid array area that is included in the air dispersion modeling analyses. To capture the worst-case concentrations, receptor locations are spaced 50 meters along the facility property line with 100-meter spacing beyond the property line, consistent with DHEC and U.S. Environmental Protection Agency (EPA) guidelines.

Pollutant concentrations are calculated at each receptor labeled by the blue points on the map shown in Figure 5. The calculations are not averaged across the domain, and the worst-case 24-hour concentrations (from modeling all five years of meteorological data) are computed for each receptor point. The highest worst-case 24-hour concentration from all of 1,146 modeled receptors modeled within the domain is then compared to the applicable pollutant standard.

The highest maximum worst-case 24-hour concentrations occur on the northern property line. The worst-case concentrations along the southern property line and points within the area where the school(s) will be located are shown to be less than 50% of the applicable standards for the modeled toxic air pollutants. Concentrations decrease outward from the

facility towards the edge of the receptor grid, with lowest/decreasing concentrations (well below the standard) at 1500 meters. The decreasing concentrations at the edge of the receptor grid demonstrate the model has captured the maximum 24-hour concentration as modeled and that the maximum would likely not occur outside of the modeled domain.

A comment asked whether volatile organic compounds (VOCs) can be modeled.

Response: There are no state or federal ambient air quality concentration standards for VOCs and they cannot be modeled as a group of compounds. However, many VOCs are also toxic air pollutants, which underwent a technical review to demonstrate compliance with Standard No. 8 Toxic Air Pollutants.

Comments were received that no professional engineer (PE) stamp was on the modeling report.

Response: The PE stamp is provided on DHEC form 2566 (page 4 of 13) and covers the entire application, including the modeling report and any later corrections and additional information received.

6. Health Impacts of Air Pollutant Emissions

Comments were received regarding questions and concerns about the short and long-term health impacts of air pollutant emissions from the facility. This included impacts to nearby schools, daycares, communities, Carowinds visitors/workers, and sensitive populations, as well as pets. In addition, comments asked specifically about the history and scope of the Department's air quality standards for toxic air pollutant emissions, including averaging periods and health impacts to children at the allowed levels and how a regulatory provision referencing location applies.

Response: The Clean Air Act requires the EPA to establish National Ambient Air Quality Standards (NAAQS) for six common pollutants ("criteria pollutants") considered harmful to public health. The EPA uses and regularly reviews all available scientific data to set concentration limits to protect public health, including the health of sensitive populations such as asthmatics, children, and the elderly. These NAAQs are set to protect human health with an adequate margin of safety.

In accordance with S.C. Regulation 61-62.1, "no permit to construct or modify a source will be issued if emissions interfere with attainment or maintenance of any state or federal standard." Silfab Solar's proposed operations were evaluated to determine if the emissions from the proposed project would interfere with attainment of the NAAQS. The emissions

rates for the criteria pollutants were determined to be well under the thresholds specified in the Modeling Guidelines for Air Quality Permits under which air quality dispersion modeling would be required. These minimal emissions indicate that the facility will not interfere with NAAQS attainment at or beyond the property boundary.

VOCs encompass a wide variety of compounds, however specific VOCs are also listed as Toxic Air Pollutants and regulated by South Carolina Regulation 61-62.5, Standard No. 8. As explained below, Standard No. 8 is a health-based regulation that requires facilities that have listed pollutants above certain emissions levels to demonstrate compliance through air dispersion modeling.

The EPA has not established national ambient air standards for Toxic Air Pollutants (TAPs). South Carolina regulates TAPs under state regulation S.C. Regulation 61-62.5, Standard No. 8. This regulation was first adopted in 1991, with minor changes and corrections thereafter.

The state regulation sets a maximum allowable 24-hour average concentration for each TAP designed to be protective of human health for all populations. In general, the standards were developed based on Reference Concentrations (RfCs) developed by EPA or based on the American Conference of Governmental Industrial Hygienists (ACGIH) threshold limit values (TLVs) or, where RfCs or TLVs were not established, on OSHA Permissible Exposure Limits (PELs). TLV and PEL values were divided by a safety factor (40 for low toxicity pollutants, 100 for moderate toxicity pollutants, and 200 for high toxicity pollutants) in the establishment of TAP standards. Values were converted to a 24-hour averaging time, as the TLV of a chemical substance is based on workplace exposures assuming 8 hour per day, 5 day per week.

The modeling analysis for hydrochloric acid and hydrogen fluoride emissions from Silfab Solar demonstrated compliance with the allowable ambient concentration under this standard. Toluene emissions at Silfab Solar are below de minimis levels and therefore are not expected to cause an exceedance of the maximum allowable 24-hour average concentration specified by the regulation.

The reference to location within Standard No. 8 is a provision that allows the Department to determine whether a source with TAP emissions of less than 1000 lbs/month must obtain an air quality permit for its operations or may operate without one, and such determination of whether a permit will be required would take into account the facility location for modeling purposes, as well as other factors. The referenced provision does not apply in this case, as the proposed Silfab Solar facility is required to obtain an air quality permit for construction and operation irrespective of the referenced provision.

7. Safety Risks and Emergency Plans Regarding Chemicals

Comments were received regarding concerns about safety risks to schools and the community based on chemical use and storage. Some commenters referenced concern about accidents, referencing recent or historical accidents or exposures that have occurred in other parts of the country or world. Comments also raised questions and concerns about the facility's risk management program, its emergency plans, and training in the handling of toxic chemicals.

Response: Silfab Solar will be subject to S.C. Regulation 61-62.68, Chemical Accident Prevention Provisions, for storage of silane and hydrochloric acid. The primary goals of the risk management program are to prevent accidental releases of toxic and flammable substances that may cause harm to the public or the environment, and to reduce the severity of such releases that do occur. The three major elements of the program are a hazard assessment, prevention program and emergency response. Silfab Solar will be required to develop and implement a risk management program and submit its risk management plan to the EPA. The EPA shares these plans with state implementing agencies. As the implementing agency for this program, the Department ensures regulated facilities comply with the risk management program requirements by conducting compliance inspections and investigating any accidents that do occur.

As part of its risk management plan, the facility must conduct an off-site consequences analysis identifying hazards and potential impacts, in accordance with the specific regulatory requirements. The facility must train all employees on the hazards of chemicals stored on site. Additionally, each employee working on the covered process is required to receive initial training in the operating procedures, refresher training at least every three years and the facility must keep a record to ascertain that each employee has received and understood the training.

In addition to the above regulatory requirements, Silfab Solar is also more broadly subject to the Clean Air Act's General Duty Clause, which requires subject facilities to identify hazards which may result from chemical releases using appropriate hazard assessment techniques, to design and maintain a safe facility taking such steps as are necessary to prevent releases, and to minimize the consequences of accidental releases. This provision of the Clean Air Act is delegated only to the US EPA. Furthermore, employee safety hazards are regulated pursuant to Occupational Safety and Health Act (OSHA) requirements.

Comments were received stating there was concern that an emergency plan had not already been established. Other comments asked about the contents of the emergency response plan, including questions about alarms in the event of an accident.

Response: The facility must develop an emergency response plan that addresses the unique characteristics of that property and chemicals. The emergency response plan has not been developed at this time. It is standard practice to develop this plan once all the necessary permits are received and construction specifications are finalized. The plan is required to be submitted prior to bringing any regulated substance onsite above the specified threshold quantity and will include procedures for informing the public and response agencies (e.g the fire department) should an accident occur. Once the plan has been developed, the regulation requires that plan to be incorporated into the community emergency response plan developed under 42 U.S.C. 110003. This must be completed before chemicals covered under the risk management program regulations are present on-site above threshold quantities.

The facility is required to coordinate an annual meeting with the Local Emergency Planning Committee and other response organizations to address changes at the facility, changes to the facility's emergency response, and/or changes to the community emergency response plan. The facility must document names of individuals involved, the individuals contact information, dates of coordination activities, and the nature of coordination activities.

A comment was received concerning the use of the word "may" in condition D.2 and this condition's relation to the emergency plan required.

Response: This permit condition reflects the underlying language of South Carolina Regulation 61-62.1, Section II(L), which provides the facility the ability to document as an emergency a qualifying event that causes the source to exceed a technology-based emission limitation under the permit due to unavoidable increases in emissions attributable to the emergency. For purposes of this provision, an emergency only includes situations arising from sudden and reasonably unforeseeable events beyond the control of the source, including acts of God. The facility is not required to claim an incident involving noncompliance as an emergency but rather has the option to ("may") report the event as outlined in condition D.2 for review and evaluation by the department. Irrespective of whether any noncompliance is documented as an emergency, the facility would be required to be report any excess emissions or other noncompliance as otherwise required by the permit, including as part of the report required in condition B.4 along with the corrective action take to minimize emissions. Emergency response plan requirements pursuant to chemical accident prevention provisions are distinct from condition D.2 and are addressed by applicable risk management program regulatory and permit requirements, as discussed further above.

8. Fire Department and Emergency Response Capabilities

Comments were received regarding fire risks and emergency response for the proposed facility, including comments about DHEC's capabilities, training and equipment for schools, and the capabilities of local emergency responders. Specific comments were received about the Fort Mill fire department's capabilities and whether it would be responsible for responding to serious problems at the plant, the absence of a fire department substation, the cost of expanding fire resources to respond to a fire at the plant, and funding for fire resources.

Response: The general operations and funding of schools, local fire departments, and emergency response personnel are local matters that are outside the scope of Department air quality regulation and oversight. However, the Fort Mill Fire Department will be included in the development of the facility's emergency response plan. The Fort Mill Fire Department addressed questions about its response capabilities with regard to the site during a presentation to county representatives during the Silfab FILOT Agreement public hearings. The facility is required to coordinate response actions with the local fire department. The facility is also required to be included in the community emergency response plan developed under 42 U.S.C. 110003. Facilities are required to coordinate an annual meeting with the Local Emergency Planning Committee and Fire Department to address changes at the facility, changes to the facility's emergency response, and/or changes to the community emergency response plan. The facility must document names of individuals involved, the individuals contact information, dates of coordination activities, and the nature of coordination activities.

In addition to local emergency response, DHEC provides technical assistance and response to environmental emergencies or threats that arise from the release of hazardous and radiological materials due to industrial or transportation emergencies as well as natural disasters. A statewide emergency response line is available 24 hours per day to report ongoing chemical releases at (888) 481-0125. In most instances, trained personnel in regional offices are the initial responders to calls for assistance. A specially trained responder remains on call at all times to respond to chemical emergencies.

9. Location

Comments were received raising concern about the facility's location near schools, senior communities, residences, and commercial establishments. Some comments asserted that a facility like Silfab Solar should be built in a different location – either a more rural or industrial area. Comments also raised concerns about the proposed facility's compliance with county zoning ordinances, including performance standards referencing emissions of fumes, vapors, and gases.

Response: The Department does not have the authority to dictate where a facility may or may not be located or make zoning decisions, and the interpretation, application, and enforcement of county zoning ordinances are outside of the Department's purview. Zoning and land use decisions are made by city or county zoning authorities. The Silfab Solar site is zoned by the county as Light Industrial District (LI), and York County authorities have determined that Silfab Solar's proposed processes constitute an allowable use under the LI designation. The county has indicated that uses allowed under the LI designation are subject to applicable performance standards under the county Zoning Code, and these standards are enforced pursuant to the code's enforcement provisions. The county has indicated that air quality requirements administered through Department air permits and Department air quality regulations are the standards against which compliance with the county performance standards governing emissions of fumes, vapors, and gases is measured.

The Department's decision is based on the technical review of the proposed project, state and federal air quality regulations, and the project's ability to comply with those regulatory requirements. These requirements aim to protect air quality and address applicable chemical accident prevention measures to safeguard public health and the environment. The Department has determined that Silfab Solar has demonstrated it can meet the standards and requirements of all applicable state and federal air quality regulations by complying with the conditions of the synthetic minor construction permit. If you want to get involved in local zoning or planning issues, you can contact your local county council representatives for more information.

10. Decreasing property values

The Department received comments in opposition to the issuance of the Silfab Solar air construction permit citing concerns about the possible decreases in property values in the area.

Response: The Department's permitting decisions are based on the Department's technical review of an application and the regulatory requirements in place at the time of the Department's review. The Department cannot dictate where a facility desires to locate or control impacts on property values and does not have the regulatory authority to consider current or future property values when making permitting decisions. For further discussion, please see the above response under Section 5 – Location.

11. Solar Manufacturing Expertise

Comments were received asking if the Department has any experts on solar panel manufacturing.

Response: While the Department does not have experts specific to solar panel manufacturing, it does have experts on evaluating air emissions from manufacturing operations. Our permitting staff include licensed professional engineers, professional modelers and meteorologists, and other technical staff who are trained to evaluate submitted emission rates, types of control technology available for reducing emissions, and applicable federal and state air regulations across the wide range of manufacturing operations subject to Department air quality permitting.

12. Odor

The Department received comments in opposition to the proposed construction project citing concerns of increased odors from the facility's operations.

Response: It's important to know that odor alone doesn't always mean that there is a dangerous level of air pollution. Some air pollutants can be detected by their smell even if their concentrations are lower than the maximum allowable concentrations established to protect public health. There are no state or federal regulations administered by the Department that would specifically govern odors from the facility. However, local governments may have their own requirements related to odor, so it's recommended to contact the relevant authority if you have any questions about local odor regulation. If you perceive any abnormal odors, it could be a sign of equipment malfunction or other issues. In such cases, it's best to report the issue to the Department, which does investigate citizen complaints, including odor complaints. Such issues can be reported to the Department online at <https://scdhec.gov/about-dhec/contact-us/report-it/report-environmental-concern> or by calling the Department's Midlands Lancaster Regional Office at (803) 285-7461.

13. Traffic

Comments were received regarding increased traffic, the safety on roads as a result of increased traffic, and the safety of transporting hazardous materials.

Response: Issues related to traffic and road safety are outside the scope of the Department's air quality regulations and air permitting. The Department of Transportation regulates the transport of hazardous materials.

A 2023 traffic study, approved by York County Planning & Development Services, showed Silfab Solar will have an insignificant impact to traffic to the community.

14. Building Specifications

Comments were received regarding the building codes of the Silfab Solar building. Comments also stated concern about the Silfab Solar building's design as a distribution center, as opposed to a manufacturing facility of the nature proposed.

Response: Compliance with local building codes is not considered in the technical review of whether a facility can comply with state and federal air quality regulations. Building permits are issued by the county. The county enforces the building codes that apply to the construction or reconstruction of the building. The Department also cannot speak to what professional structural engineering firm would be used to inspect the building for compliance with building codes. The Department has reviewed the permit application and associated site plans as they relate to the proposed facility's ability to comply with air quality requirements within the purview of the Department. The applicant has shown an ability to comply with the relevant air quality requirements based on the specific site plans included in the application.

15. Natural Disasters

Comments were received stating concern about risks in association with natural disasters (earthquakes, hurricanes, tornados, etc.) and precautions being taken in preparation.

Response: As discussed further below, Silfab Solar will be subject to risk management program requirements under S.C. Regulation 61-62.68, Chemical Accident Prevention, which adopts federal risk management program requirements. In its most recent proposed revisions to these requirements, EPA reaffirmed that under the existing regulations with which covered facilities must currently comply, "natural hazards are process hazards that should be evaluated and addressed during hazard review and [process hazard analyses]." 87 Fed. Reg. 53,556, 53,567 (Aug. 31, 2022). Counties and municipalities also implement and enforce mandatory building codes in accordance with state statutory requirements.

16. Impact on Utilities

Comments were received regarding the facility's power and water usage impacts.

Response: The facility's power and water usage impacts are outside the scope of the Department's air quality regulations and oversight; therefore, they cannot be considered in the decision to issue the air quality permit. The South Carolina Office of Regulatory Staff is charged with representing the public interest of South Carolina in utility regulation for the major utility industries such as electric, natural gas, telecommunications, transportation, and water/wastewater.

17. Impacts on non-air quality resources

Comments were received regarding the impacts of chemical or other waste and/or hazardous waste to soil, groundwater, drinking water, wildlife, and animal habitats.

Response: The non-air quality impacts referenced by commenters are outside the scope of the Department's air quality regulations for minor new source review; therefore, they cannot be considered in the decision to issue the air quality permit. However, impacts on non-air quality resources are addressed by other areas of federal and state environmental oversight. Releases of regulated air pollutants into the ambient air will be addressed by the terms of the air quality permit, including the applicable regulatory requirements referenced therein.

One commenter further inquired about impacts from rejected solar cells or chemical spills with respect to air ventilation and external air. Rejected solar cells are not anticipated to be a source of air quality emissions subject to Department regulations. Chemical spills would be addressed through facility risk management program requirements. Any non-air quality impacts from such concerns would be addressed by other areas of environmental oversight, as applicable.

18. Noise

Comments were received expressing concern that the project will lead to increased noise from the facility's operations.

Response: The Department does not have any noise standards in its air quality regulations and therefore lacks authority to base a permit decision on noise levels. Noise is regulated by the York County Zoning Department.

19. Material on-site before construction permit issued

A comment was received alleging that Silfab Solar is operating and receiving shipments of materials.

Response: On November 17, 2023, the Department conducted an inspection of the Silfab Solar facility to assess the mentioned claim. The regional inspector found no indications of solar panel manufacturing activities. The Department did find that the building was being used as a solar panel storage and distribution center. However, these activities do not have any associated air emissions and do not require an air permit.

20. Liability and Ownership

Comments were received regarding liability in the event of accidents, including who would be liable and whether Silfab Solar would be financially responsible for any harm or damage that occurred. Comments stated that the facility should be required to post a bond to cover potential costs of any accident. Concern about the facility's ownership by a foreign investor was also raised.

Response: As a general matter, liability for claims of damages is a legal matter that is determined as necessary through the appropriate legal channels. Applicable air quality regulations do not include any requirement that facilities post a bond to receive a permit. However, the facility is required to maintain compliance with its permit and take corrective action to address any noncompliance. Regardless of whether a proposed owner or operator is foreign or domestic, the application is reviewed based on the information submitted and technical requirements in place.

21. Other Facilities

Comments were made concerning nearby environmental compliance history at the New Indy pulp and paper facility, including concerns about similar or additional issues arising from the proposed facility.

Response: For more information about the Department's past and future pending actions regarding the New Indy facility, go to our website at <https://scdhec.gov/environment/environmental-sites-projects-permits-interest/new-indy-odor-investigation>

For more information about the EPA's past and future pending actions regarding the New Indy facility, go to EPA's website at https://response.epa.gov/site/site_profile.aspx?site_id=15198

The operations at Silfab are entirely different than those at the pulp and paper mill. The Department will investigate any complaints or instances of potential non-compliance should they arise and will act to address any issues with compliance with state and federal air regulations as it did and continues to do with New Indy and other facilities subject to Department air quality permitting and regulation. The Silfab draft permit includes monitoring, recordkeeping, and reporting requirements designed to ensure such occurrences are minimized and facilitate Department oversight with respect to air permit compliance.

22. Statements by Silfab Solar

Comments stated concern about the behavior of Silfab Solar representatives at the public hearing, as well as about claimed misinformation in communications with Silfab Solar representatives.

Response: The Department cannot speak to the behavior or statements of individual attendees at the public hearing or any other forum. The Department's review in this matter was based on the permit application and all supplemental information provided, as well as the technical requirements in place. All official correspondence, plans, permit applications, and written statements are considered an integral part of the permit. The Department also has reviewed and considered all comments and concerns voiced at the public hearing and received during the comment period, and responsive changes have been made to the draft permit where deemed appropriate.

23. General Support or Opposition

The Department received general comments in support or opposition to the issuance of the Silfab Solar air construction permit and requests to deny Silfab Solar's air construction permit application.

Response: The Department appreciates the various comments and concerns expressed by the community regarding the draft Silfab Solar construction permit comment period. However, the Department does not have the authority to make permitting decisions based on community, business, employee, and customer approval or disapproval of the company/facility. The Department's permitting decision is based on the technical review of the application and regulatory requirements in place at the time the application was submitted and whether the facility has demonstrated that it can meet all applicable air regulatory requirements if operated according to the information provided in the application. The Department has considered all comments received about the draft construction permit and the facility's ability or inability to meet applicable air regulatory requirements, as detailed in the comments and responses above.