



SC DEPARTMENT *of*
**ENVIRONMENTAL
SERVICES**

Silfab Solar Community Forum

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(formerly SC DHEC)



Air Quality Permitting Process (Silfab Application Timeline)

- **June 5, 2023:** air permit application for a solar panel production facility was submitted to the former DHEC (now SCDES)
- **June – August 2023:** technical review performed by agency staff
- **August 9, 2023:** draft air permit placed on public notice for 30 days
- **September 22, 2023:** public meeting and hearing announced; comment period extended
- **October 30, 2023:** public meeting (Q&A session) and hearing held, with more than 100 attendees
- **November 3, 2023:** extended public comment period ended, received more than 400 oral and written comments

Air Quality Permitting Process (Silfab Application Timeline)

- **November 2023–March 2024:** the agency requested additional information from the company, made changes to the permit, and prepared responses to public comments
- **March 1, 2024:** the agency issued the air permit and provided a 23-page Response to Comments document that was sent to those who submitted comments and attended the public meeting/hearing
- Changes were made to the air permit based on some of the public comments received:
 - More frequent stack testing
 - More stringent monitoring, reporting and recordkeeping requirements
- State law requires DHEC/SCDES to issue an air permit if a facility demonstrates it can meet all state and federal air quality standards
 - SCDHEC/SCDES has no zoning authority
- No appeal received by the Administrative Law Court, therefore the permit became the final agency decision

Air Quality Analysis

- State and federal air quality standards are established to be protective of people's health, especially children and the elderly, as well as the environment
- A computerized air dispersion modeling analysis is used to demonstrate whether emissions from facilities will meet health-based standards or will have an adverse impact offsite
- Modeling analysis factors in nearby offsite property, including public places such as schools, businesses, homes, and parks
- Next-door school property was evaluated for all regulated air pollutants, including air toxics
- Modeling analysis showed compliance with all state and federal health-based standards

Air Pollutants Evaluated

- Criteria pollutant emissions from fuel-burning equipment (boilers, emergency generators)
 - Particulate matter (PM)
 - Nitrogen dioxide (NO₂)
 - Sulfur dioxide (SO₂)
 - Carbon monoxide (CO)
 - Volatile organic compounds (VOC)
 - All criteria pollutant emissions below exemption levels
- Air toxic pollutant* emissions from solar panel production process
 - Hydrochloric acid (HCl)
 - Hydrogen fluoride (HF)
 - Toluene below de minimis level

*Also considered federal hazardous air pollutants (HAPs)

Air Toxic Pollutants

- South Carolina regulates more than 250 air toxic pollutants
 - Health-based limits are set for each pollutant by category
 - More than half of pollutants are Category 3 (High Toxicity)
- Toluene and HF are commonly used Category 3 air toxic pollutants
 - More stringent safety factors were used to set standards for Category 3 pollutants to account for higher toxicity
 - HF emissions < 42% of limit
 - Toluene emissions below de minimis levels
- HCl is a commonly used Category 1 air toxic pollutant (low toxicity)
 - HCl emissions < 10% of limit

Air Pollution Control Devices

- Silfab will use air pollution control devices to reduce emissions and offsite impacts
- Scrubbers will control HCl and HF by at least 96%
 - With controls, the facility will be considered a minor source of air emissions
 - Testing required to show compliance with control efficiency and emissions limits
 - Scrubber operating parameters will be monitored daily or weekly
 - Unannounced inspections by SCDES staff
 - Compliant investigations by SCDES staff

Stack Height Change

- Condition I.1 of the air permit allows facilities to adjust stack parameters and building dimensions as needed
- Silfab notified SCDES in June 2024 that the stack height would need to be lowered to meet county code
- Silfab updated its air dispersion modeling analysis on July 2, 2024
- Modeling analysis demonstrated compliance with state and federal health-based standards
- Silfab also notified SCDES of 4 exempt boilers it will use to produce steam
- No permit modification is required for stack height change or exempt boilers
- SCDES issued the approval letter on July 30, 2024

Accidental Release Prevention Program

- Goals of program: (1) prevent accidental releases and (2) minimize releases that still occur
- Silfab is subject to program for two substances:
 - **Silane**: a flammable gas (not an air toxic)
 - Used by Silfab to produce a thin layer of silicone on solar cells to help convert sunlight to electricity
 - Also commonly used to make fiberglass, paints, inks, coatings, adhesives, water repellants, and drying agents
 - **Hydrochloric acid** (concentration > 37%) – toxic liquid
 - Used by Silfab for texturing and cleaning
 - Also commonly used to make batteries, flash bulbs, fireworks, and building/construction products
- Facilities are required to submit a summary of their program, called a Risk Management Plan (RMP), to the EPA before bringing substances on-site. The EPA shares RMPs with the state agency (SCDES).

Accidental Release Prevention Program

- Detailed documentation of program kept on-site
- SCDES staff conduct inspections and review documentation kept on-site after the RMP is received from the EPA
- Onsite documentation includes:
 - Standard operating procedures
 - Process hazard analysis
 - Material handling procedures
 - Safety control measures
 - Automatic shutoff/alarm systems
 - Employee training materials
 - Offsite consequence analysis
 - Emergency response procedures
 - Accident investigation reports

Accidental Release Prevention Program

- Emergency Response Procedures
 - Coordinate the emergency response plan with local fire department and county emergency response agencies
 - Annual drills/exercises
 - Employee response training
- More information at www.epa.gov/rmp

Public Copies of Risk Management Plans (RMPs)

- Copies of RMPs can be found at <https://cdxapps.epa.gov/olem-rmp-pds/>
- State and federal law restricts access to the offsite consequence analysis (not available on public website)
- 171 facilities in SC currently have RMPs on file for various chemicals
- Silfab must submit RMP before bringing regulated substances on-site

Wastewater

- SCDES issued a construction permit to Silfab to install a wastewater pre-treatment system on May 22, 2024
- All treated wastewater will be discharged to the public sewer system
- Quality and quantity of the treated wastewater discharged to the sewer is the sole responsibility of the City of Rock Hill



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More information and follow-up questions

SCDES Silfab Webpage: des.sc.gov/silfab

- Includes the permit application and additional information, the public hearing transcript, the 23-page response to comments document, the final air permit, the stack height change and boiler exemption approval letter, and the wastewater and stormwater information

Submit follow-up questions using the form available at des.sc.gov/silfab

- Follow-up questions may be submitted for the next 15 days (by September 10, 2024)