GEORGIA
DEPARTMENT OF NATURAL RESOURCES
ENVIRONMENTAL PROTECTION DIVISION

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NARRATIVE

TO: Jeng-Hon Su

FROM: Nada Osman

DATE: October 28, 2025

Facility Name:	**Hanwha Q Cells USA, Inc.**
AIRS No.:	313-00165
Location:	Dalton, GA (Whitfield County)
Application #:	29791
Date of Application:	June 3, 2025

Background Information

Hanwha Q Cells USA, Inc. (hereinafter "facility") is an existing solar module assembly facility located at 300 Nexus Drive in Dalton, Georgia. The facility is located in Whitfield County, which is an attainment county for all criteria air pollutants. The facility is currently a synthetic minor source, operating with facility-wide emission limits of 100 tons per year (tpy) for volatile organic compounds (VOC) and 10/25 tpy for single/combined hazardous air pollutants (HAP).

Solar cells are brought on-site and assembled into modules. The cells are cleaved, and connections are formed between them during tabbing with the aid of flux material. The cells are then laid out and the connections completed through a soldering process. The assembly process utilizes an induction soldering method, meaning that a separate solder material is not used in the process. An Ethyl Vinyl Acetate (EVA) film and back-sheet is laminated with solar cells, and several quality control checks are performed throughout the process. The edges of the modules are trimmed as needed after lamination, and the junction box is soldered to the assembled module using induction soldering. The module is framed using silicone in aluminum frames, and a mixture of potting silicone is applied inside the junction box to protect the components from corrosion. The silicone from the framing and potting processes (including the potting mixture inside the junction boxes) undergoes a curing process at near ambient temperature. The solar cell modules are then sorted and packaged prior to being shipped off-site.

The facility currently operates under Air Quality Permit No. 3674-313-0165-S-01-0, issued on September 7, 2018, Permit Amendment No. 3674-313-0165-S-01-1, issued on September 1, 2020, Permit Amendment No. 3674-313-0165-S-01-2, issued on October 12, 2022, and Permit Amendment No. 3674-313-0165-S-01-3, issued on February 7, 2023.

Purpose of Application

On June 3, 2025, the facility submitted Application No. 29791 requesting the removal of the facility-wide 100 tpy VOC emission limit and the reclassification of the facility as a Title V major source. The Title V avoidance limit for VOC will be replaced by a 250 tpy Prevention of Significant Deterioration (PSD)

avoidance limit. A Public Advisory was issued for this application on July 23, 2025, and expired on August 22, 2025. No comments were received.

Updated Equipment List

Table 1: Equipment List

Emission Units				Associated Control Devices	
Production Line Code	**Source Code**	**Description**	**Installation Date**	**Source Code**	**Description**
PR01	T01	Tabbing Process	2018	--	--
	L01	Lamination Process			
	S01	Junction Box Soldering Process			
	F01	Framing Process			
	P01	Potting Process			
	T02	Tabbing Process			
	L02	Lamination Process			
	S02	Junction Box Soldering Process			
	F02	Framing Process			
	P02	Potting Process			
	T03	Tabbing Process			
	L03	Lamination Process			
	S03	Junction Box Soldering Process			
	F03	Framing Process			
	P03	Potting Process			
PR02	T04	Tabbing Process	2022	--	--
	L04	Lamination Process			
	S04	Junction Box Soldering Process			
	F04	Framing Process			
	P04	Potting Process			
	T05	Tabbing Process			
	L05	Lamination Process			
	S05	Junction Box Soldering Process			
	F05	Framing Process			
	P05	Potting Process			
PR03	T06	Tabbing Process	2022	--	--
	L06	Lamination Process			
	S06	Junction Box Soldering Process			

Emission Units				Associated Control Devices	
Production Line Code	**Source Code**	**Description**	**Installation Date**	**Source Code**	**Description**
	F06	Framing Process			
	P06	Potting Process			
	T07	Tabbing Process			
	L07	Lamination Process			
	S07	Junction Box Soldering Process			
	F07	Framing Process			
	P07	Potting Process			

Table 2: Fuel-Burning Equipment

Source Code	Input Heat Capacity (MMBtu/hr)	Description	Installation Date	Construction Date
SH01	18.3	38 Natural Gas-fired Heating Units (36 Rooftop Units, 2 Outdoor Units)	2018	2018
SH02	20.9	41 Natural Gas-fired Rooftop Heating Units (32 Rooftop Units, 9 Outdoor Units)	2022	2022
FP01	0.6	Diesel-fired Emergency Fire Pump	2018	2018
EG01	0.7	Natural Gas-fired Emergency Generator	2023	2023
EG02	0.3	Diesel-fired Emergency Generator	2023	2023

Emissions Summary

As facility production throughput has increased over the past year, facility-wide VOC emissions have also steadily increased. The facility recalculated its VOC emission factors based on increased material data usage, resulting in higher monthly VOC emission totals. As a result, the facility has requested the removal of the 100 tpy VOC emission limit and the reclassification from a synthetic minor to a Title V major source. The 10/25 tpy single/combined HAP emission limits will remain unchanged. The 100 tpy VOC Title V avoidance limit in Existing Condition 2.1 has been replaced with a facility-wide 250 tpy VOC Prevention of Significant Deterioration (PSD) avoidance limit.

Emissions were calculated based on maximum facility production and 8,760 hours per year of operation.

Table 3: Facility-wide Emissions (tpy)

Pollutant	Potential Emissions		
	Before Mod.	**After Mod.**	**Emissions Change**
$PM/PM_{10}/PM_{2.5}$	2.6	2.6	0
NOx	24.9	24.9	0
SO_2	0.3	0.3	0

Pollutant	Potential Emissions		
	Before Mod.	After Mod.	Emissions Change
CO	19.8	19.8	0
VOC	<100	<250	150
Max. Individual HAP	<10	<10	0
Total HAP	<25	<25	0
Total GHG (if applicable)	--	--	--

Note that the equations included in Conditions 7.4 and 7.8 of the proposed permit do not include the VOC emissions from the facility's fuel-burning sources (Boilers SH01 and SH02, Fire Pump FP01, and Engines EG01 and EG02). Although Conditions 2.1 and 2.2 cap facility-wide VOC emissions at 248 tpy and single/combined HAP emissions at 9/24 tpy, considering the potential emissions from the fuel-burning sources, the facility-wide VOC and HAP emissions are in fact capped below 250 and 10/25 tpy, respectively.

Regulatory Applicability

Georgia Rule 391-3-1-.02(2)(b), Visible Emissions

Georgia Rule (b) limits the visible emissions from all manufacturing processes not to exceed 40% opacity. Solar panel manufacturing processes are unlikely to generate high opacity emissions by nature, and facility-wide PM emissions are expected to be less than 5 tpy; therefore, visible emissions are expected to be compliant with Georgia Rule (b).

Georgia Rule 391-3-1-.02(2)(d), Fuel Burning Equipment

Georgia Rule (d)2.(i) limits the opacity and rate of emission of fly ash and other particulate matter from fuel burning equipment with a capacity less than 10 MMBtu/hr. The rooftop heating units (ID Nos. SH01 and SH02) furnish heat indirectly through transfer by fluids and transmission though process walls (in this case, combustion exhaust passes as a fluid and transfers heat to air going into the building through piping/vessel walls) and therefore meet the definition of "fuel-burning equipment" as defined in Georgia Rule 391-3-1-.01(cc).

The rooftop heating units (ID Nos. SH01 and SH02) both burn natural gas, which is considered a "clean fuel." Therefore, both SH01 and SH02 are expected to comply with Georgia Rule (d) limits.

Georgia Rule 391-3-1-.02(2)(e), Particulate Matter Emissions from Manufacturing Processes

Georgia Rule (e) limits particulate matter emissions based on process input weight rate. The solar panel manufacturing process is expected to produce less than 5 tpy of PM emissions; therefore, the facility is expected to comply with Georgia Rule (e) PM limits.

Georgia Rule 391-3-1-.02(2)(g), Sulfur Dioxide

Georgia Rule (g) limits all fuel burning sources with a heat input capacity below 100 MMBtu/hr to burn only fuel containing no more than 2.5% sulfur, by weight. The rooftop heating units (ID Nos. SH01 and

SH02) and emergency generator (ID No. EG01) combust natural gas, and the emergency generator (ID No. EG02) and emergency fire pump (ID No. FP01) combust diesel fuel oil. Both fuels have fuel sulfur contents of less than 2.5%, automatically complying with Georgia Rule (g) requirements.

Georgia Rule 391-3-1-.02(2)(tt), VOC Emissions from Major Sources

Facilities located in the applicable counties can potentially be subject to Georgia Rule (tt) if the facility-wide VOC PTE is equal to or exceeds 25 tpy. Whitfield County is not included in the listed counties subject to Georgia Rule (tt) and therefore, the facility is not subject to the rule.

Georgia Rule 391-3-1-.02(2)(lll), NOx Emissions from Fuel-Burning Equipment

Georgia Rule (lll) limits NOx emissions from fuel-burning equipment with a heat input capacity between 10 MMBtu/hr and 250 MMBtu/ to a maximum of 30 ppm at 3% oxygen on a dry basis. This rule applies to fuel-burning units that were installed after May 1st, 1999. The facility is located in Whitfield County, which is not one of the named counties subject to GA Rule (lll); therefore, the rule does not apply.

Georgia Rule 391-3-1-.02(2)(rrr), NOx Emissions from Small Fuel-Burning Equipment

Georgia Rule (rrr) limits NOx emissions from fuel-burning equipment installed after May 1, 1999 which have a heat input capacity of less than 10 MMBtu/hr. The facility is located in Whitfield County, which is not one of the named counties subject to Georgia Rule (rrr); therefore, the rule does not apply.

Permit Conditions

Condition 2.1 replaces the previous facility-wide 100 tpy VOC emission limit with a facility-wide 248 tpy VOC emission limit, to avoid being subject to PSD regulations. The limit was set at 248 tpy instead of 250 tpy to account for VOC emissions from the facility's fuel-burning sources, which are not included in the VOC tracking equation in Condition 7.4.

Condition 2.2 limits facility-wide emissions of any single HAP to 9 tpy and emissions of any combination of HAPs to 24 tpy in order for the facility to remain an area source of HAP emissions. The limits were set at 9 tpy and 24 tpy instead of 10 tpy and 25 tpy to account for HAP emissions from the facility's fuel-burning sources, which are not included in the HAP tracking equation in Condition 7.8.

Condition 2.3 limits visible emissions from manufacturing equipment to no more than 40% opacity, per Georgia Rule (b).

Condition 2.4 limits the rate and opacity of PM emissions from fuel-burning equipment, per Georgia Rule (d).

Condition 2.5 limits the rate of PM emissions from manufacturing equipment based on process input weight rate, per Georgia Rule (e).

Condition 2.6 requires the facility to fire only natural gas in the rooftop heaters (ID Nos. SH01 and SH02) and the emergency generator (ID No. EG01), and fire only distillate fuel oil in the emergency generator (ID No. EG02) and the emergency fire pump (ID No. FP01), subsuming the Georgia Rule (g) fuel sulfur requirement.

Note that Existing Condition 6.2 was removed because the required performance tests were conducted on February 7 and 8, 2024. Existing Conditions 7.10 and 7.11 were removed because the facility submitted the notification of startup for Lines PR02 and PR03 on November 13, 2023, and the inspection certifications for the lines on December 6, 2023.

Existing Condition 7.1 was replaced because the facility submitted notification of startup on September 25, 2019. The actual facility startup date was reported as February 11, 2019. New Condition 7.1 requires the facility to maintain monthly usage records of all VOC-containing materials used in the facility and the total kW of products that went through the tabbing and lamination process lines.

Condition 7.2 requires the facility to use the records required by Condition 7.1 and the equation in Condition 7.4 to calculate combined total monthly VOC emissions from the entire facility, and to notify the Division if total monthly VOC emissions exceed 20.66 tpy during any calendar month.

Condition 7.3 requires the facility to use the monthly VOC emission data obtained in accordance with Condition 7.2 to determine the twelve-month rolling total emissions of VOC from the entire facility for each calendar month and to notify the Division if totals equal or exceed 248 tons during any twelve-consecutive month period.

Condition 7.4 requires the facility to use the provided equation to calculate facility-wide monthly VOC emissions in accordance with Condition 7.2.

Condition 7.5 requires the facility to maintain monthly usage records of all HAP-containing materials used in the facility and the total kW of products that went through the tabbing and lamination process lines.

Condition 7.6 requires the facility to use the records required by Condition 7.5 and the equation in Condition 7.8 to calculate total monthly of each single HAP and all total HAPs. The facility must notify the Division if emissions of any single HAP exceed 0.75 tons or emissions of total HAPs exceed 2.0 tons during any calendar month.

Condition 7.7 requires the facility to use the monthly HAP emission data obtained in accordance with Condition 7.6 to determine the twelve-month rolling total emissions of single and combined HAP from the entire facility for each calendar month and to notify the Division if emissions of any single HAP exceed 9 tons or emissions of total HAP exceed 24 tons during any twelve-consecutive month period.

Condition 7.8 requires the facility to use the provided equation to calculate facility-wide monthly single and combined HAP emissions in accordance with Condition 7.6.

Condition 8.2 revokes all previously active permits and permit amendments upon issuance of Permit No. E-02-0.

Condition 8.3 requires the facility to submit to the Division a complete Title V permit application by May 31, 2026.

Condition 8.4 requires the facility to calculate and pay an annual permit fee to the Division.

Toxic Impact Assessment

The facility's most recent performance tests, performed in February of 2024, revealed formaldehyde and hydrogen fluoride emission factors lower than those previously used by the facility to calculate emissions. As a result, facility-wide potential emissions of formaldehyde and hydrogen fluoride will not increase despite the increase in production throughput; therefore, a toxic impact assessment (TIA) is not required for this application.

Summary & Recommendations

Hanwha Q Cells USA, Inc. is a solar module assembly facility located in Dalton, Georgia. The facility has requested the removal of its 100-tpy Title V avoidance limit, reclassifying itself from a synthetic minor source to a Title V major source. The facility will now be subject to a 248-tpy PSD avoidance limit.

I recommend that Permit No. 3674-313-0165-E-02-0 be issued to Hanwha Q Cells USA, Inc. The Stationary Source Compliance Program (SSCP) will continue to be responsible for inspection and compliance of this facility.

Addendum to Narrative

The 30-day public review started on month day, year and ended on month day, year. Comments were/were not received by the Division.