

September 18, 2024

Sam Jones nLIGHT, Inc. 5408 NE 88th Street, Building E Vancouver, WA 98665

RE: Final Air Discharge Permit for Vapor Degreaser Cleaning System

Dear Mr. Jones:

A final determination to issue Air Discharge Permit (ADP) 24-3662 has been completed for ADP application CL-3272 pursuant to Section 400-110(4) of the General Regulations for Air Pollution Sources of the Southwest Clean Air Agency (SWCAA). Public notice for ADP application CL-3272 was published in the permit section of SWCAA's website on August 14, 2024. SWCAA did not receive a request for a public comment period in response to the public notice and has concluded that significant public interest does not exist for this determination. Therefore, a public comment period will not be provided for this permitting action. Electronic copies of ADP 24-3662 and the associated Technical Support Document are available for public review in the "Recent Air Discharge Permits" section under the "Air Permits" link on SWCAA's website (http://www.swcleanair.gov). Original copies are enclosed for your files.

ADP 24-3662 may be appealed directly to the Pollution Control Hearings Board (PCHB) within thirty (30) days of receipt as provided in Revised Code of Washington (RCW) 43.21B.

If you have any questions or comments, or desire additional information, please contact me or Vannessa McClelland at (360) 574-3058, extension 129.

Sincerely,

Uri Papish

Executive Director

UP:VM

Enclosure: Technical Support Document and Air Discharge Permit 24-3662



AIR DISCHARGE PERMIT 24-3662

Issued: September 18, 2024

nLIGHT, Inc. 5408 NE 88th Street, Building E Vancouver, WA 98665

SWCAA ID - 2119

REVIEWED BY: Clint

Clinton Lamoreaux, Chief Engineer

APPROVED BY:

Uri Papish, Executive Director

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1. Equipment/Activity Identification

ID No.	Equipment/Activity	Control Equipment/Measure
110.		Control Equipment/Measure
1	Six (6) Inorganic Workstations	Scrubber SCR-1
2	Various MOCVD Tools	Absorbent canister system
3	Solvent Exhaust #1	Solvent baths covered when not in use
4	Solvent Exhaust #2	Solvent baths covered when not in use
5	Caterpillar Emergency Generator Engine (Building E)	Ultra-low sulfur diesel ($\leq 0.0015\%$ S). Limited operation - (≤ 100 hr/yr + emergency usage)
6	Generac Emergency Generator Engine (Building D1)	Ultra-low sulfur diesel (≤ 0.0015% S). Limited operation - (≤ 100 hr/yr + emergency usage) EPA Tier 3 design
7	Natural Gas-Fired Equipment	Ultra-low sulfur fuel (natural gas)
8	Solvac Vapor Degreaser	None

2. Permit Requirements

The following tables detail the specific requirements of this Air Discharge Permit (ADP). In addition to the requirements listed below, equipment at this facility may be subject to other federal, state, and local regulations. The requirement number is identified in the left-hand column. The text of the requirement is contained in the middle column. The emission unit, equipment, or activity to which the requirement applies is listed in the right-hand column.

ADP 24-3662 supersedes ADP 18-3294 in its entirety.

Emission Limits

Req. No.		Emission Limits	Equipment/ Activity ID No.
1.	With the exception of the pollutants listed below, facility-wide emissions of toxic air pollutants (TAPs) must not exceed the applicable small quantity emission rate (SQER) identified in WAC 173-460 as a 12-month rolling total.		Facility-wide
	Pollutant	Emission Limitation	
	Acetone	3,000 pounds per year	
	Isopropyl alcohol	3,000 pounds per year	
	Methanol	1,000 pounds per year	
	Hydrochloric acid	100 pounds per year	
	Arsine	0.019 pounds per year	
	Phosphine	0.05 pounds per year	
	Annual emissions must be Technical Support Documen	calculated using the methodology described in the t (TSD) for this ADP.	

Req. No.	Emission I	Limits			Equipment/ Activity ID No.
2.	Annual emissions from the natural gas-fired emission units listed below must not exceed:			7	
		NO_X	CO	$PM/PM_{10}/PM_{2.}$	
	Unit Identification	tons	tons	tons	
	MAU-1	0.73	0.61	0.06	
	MAU-2	0.73	0.61	0.06	
	MAU-4	0.27	0.23	0.02	
	AHU-10	0.23	0.19	0.02	
	AHU-11	0.10	0.08	0.01	
	Humidifiers H-1, H-2, H-3, H-4	1.03	0.87	0.08	
	Humidifier H-6	0.34	0.29	0.03	
	Dehumidifiers DH-1, DH-2	0.07	0.06	0.01	
	York Air Conditioners RTU-1, RTU-2	0.32	0.27	0.02	
	Thermal Processing Unit	0.03	0.03	0.003	
	Annual emissions must be calculated using for this ADP.	the methodolo	ogy desci	ribed in the TSD	
3.	Visible emissions from all equipment except exceed zero percent (0%) opacity for more period as determined in accordance with SW	than three (3)	minutes	_	1-4,7-8
4.	Visible emissions from the Caterpillar Emergency Generator Engine (Building E) and the Generac Emergency Generator Engine (Building D1) must not exceed five percent (5%) opacity for more than three (3) minutes in any one-hour period as determined in accordance with SWCAA Method 9, except during startup. For the purposes of this requirement, the startup period ends when the earlier of the following operating events occurs: (a) The engine has reached normal operating temperature; or (b) The engine has been operating for 15 minutes.			5, 6	

Operating Limits and Requirements

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
5.	Reasonable precautions must be taken at all times to prevent and minimize fugitive emissions from plant operations.	Facility-wide
6.	Operations that cause or contribute to a nuisance odor must use recognized good practice and procedures to reduce these odors to a reasonable minimum.	Facility-wide

Req.		Equipment/ Activity ID
No.	Operating Limits and Requirements	No.
7.	Emission units and activities identified in this ADP must be maintained and operated in total and continuous conformity with the conditions identified in this ADP. SWCAA reserves the right to take any and all appropriate action to maintain the conditions of this ADP, including directing the facility to cease operations until corrective action can be completed.	1-8
8.	Each pollution control device must be operated whenever the processing equipment served by that air pollution control device is in operation. Control devices must be operated and maintained in accordance with the manufacturer's specifications. Furthermore, air pollution control devices must be operated in a manner that minimizes emissions.	1 – 7
9.	The SCR-1 scrubbing liquor pH must be maintained above 7.0.	1
10.	The SCR-1 scrubbing liquor flow rate must be no less than 140 gallons per minute.	1
11.	The SCR-1 scrubber must be operated at all times acid baths may be open.	1
12.	 The MOCVD tools and gas cabinet absorbent system must be operated in accordance with the following: (a) The primary absorbent canister (Absorber 1 or Absorber 2) must be replaced within one operating day of detecting arsine or phosphine above 0.05 ppm or 0.3 ppm respectively at the 90% lifetime monitoring location. (b) The secondary absorbent canister must be replaced within one operating day of detecting arsine or phosphine above 0.05 ppm or 0.3 ppm respectively at the 50% lifetime monitoring location. The MOCVD tools must be removed from service if breakthrough of the secondary or backup absorbent canisters is detected. For the purposes of this requirement, breakthrough is defined at a detection of ≥ 0.05 ppm arsine or ≥ 0.3 ppm phosphine. 	2
13.	All containers for VOC containing materials must be kept securely closed with a lid in place except when in active use. Open containers for storage, transfer, or disposal of VOC containing materials are prohibited. In addition, all VOC containing materials used to clean and/or flush spray equipment or lines during clean up must be collected and stored in a closed container.	3, 4, 8
14.	Changes in bath surface areas and the chemical composition of bath contents must be approved by SWCAA prior to implementation. New Source Review may be required by SWCAA for changes that may significantly affect pollutant emission rates.	1 - 4
15.	Exhaust from the Caterpillar Emergency Generator Engine (Building E) and the Generac Emergency Generator Engine (Building D1) must be discharged vertically above the roof level of the building or enclosure in which the Emergency Generator Engine is located. Any device that obstructs or prevents vertical discharge is prohibited.	5, 6

Req. No.	Operating Limits and Requirements	Equipment/ Activity ID No.
16.	The Caterpillar Emergency Generator Engine (Building E) and the Generac Emergency Generator Engine (Building D1) must only be fired on #2 diesel or better. The sulfur content of the fuel fired in the Emergency Generator Engine must not exceed 0.0015% by weight. A fuel certification from the fuel supplier may be used to demonstrate compliance with this requirement.	5, 6
17.	Operation of the Caterpillar Emergency Generator Engine (Building E) and the Generac Emergency Generator Engine (Building D1) for maintenance checks and readiness testing must not exceed 100 hours per year each. Emergency operation of the emergency generator engines is not limited. A nonresettable time totalizer must be installed and used to measure the number of hours each engine operates.	5, 6
18.	Operation of the Caterpillar Emergency Generator Engine (Building E) and the Generac Emergency Generator Engine (Building D1) must be limited to maintenance checks, readiness testing, and as necessary to provide emergency power.	5, 6
19.	The solvent used in (added to) the vapor degreaser is limited to 10 gallons a year. This does not include waste solvent recovered in change outs or cleaning.	8

Monitoring and Recordkeeping Requirements

Req. No.	Monitoring and Recordkeeping Requirements	Equipment/ Activity ID No.
20.	Except for data logged by a computerized data acquisition system, each record required by this ADP must include the date and the name of the person making the record entry, at minimum. If a control device or process is not operating, a record must be made to that effect.	Facility-wide
21.	All records required by this ADP must be kept for a minimum period of no less than three (3) years and must be maintained in a form readily available for inspection by SWCAA representatives.	Facility-wide
22.	Excess emissions and upset conditions must be recorded for each occurrence.	Facility-wide
23.	For each for product used or produced at the facility that contains VOC, HAP, or TAP, the Permittee must maintain purchase receipts for quantities, Safety Data Sheet (SDS) information, and Technical Data Sheets (TDS) in a readily accessible form.	1 – 4, 8

Req.		Equipment/
No.	Monitoring and Recordkeeping Requirements	Activity ID No.
24.	The following information must be collected, recorded at the intervals specified	Facility-wide
	below, and readily available on-site for inspection:	
	(a) Scrubber maintenance and inspections, including visual inspection of	
	packing and nozzles, must be recorded for each occurrence;	
	(b) The scrubber recirculation flow rate and pH must be recorded at least once per week;	
	(c) The number of hours each emergency generator engine is operated must be recorded for each calendar year;	
	(d) The total number of hours arsine was in use with MOCVD reactors must be recorded for each calendar year. Alternatively, the permittee may record the total number of hours the MOCVD reactors were actively	
	processing wafers; (e) The total number of hours phosphine was in use with MOCVD reactors must be recorded for each calendar year. Alternatively, the permittee may record the total number of hours the MOCVD reactors were actively processing wafers;	
	(f) The amount of each solvent purchased and disposed of must be recorded at least once per month;	
	(g) The amount of solvent evaporated from the vapor degreaser must be recorded each month (does not include change out waste);	
	(h) The amount of waste solvent from the vapor degreaser due to change out and cleaning must be recorded for each occurrence; and	
	(i) Maintenance to the MOCVD tools and gas cabinet absorbent system including, but not limited to, canister replacements and maintenance of the endpoint detection system must be recorded for each occurrence.	

Emission Monitoring and Testing Requirements

There are no emission monitoring or testing requirements for the approved equipment cited in this ADP.

Reporting Requirements

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
25.	Upset conditions must be reported to SWCAA as soon as possible after discovery	Facility-wide
	by phone call or phone message, email, or fax. It is the Permittee's responsibility	-
	to verify that the upset conditions information was received.	

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
26.	 Excess emissions must be reported to SWCAA as follows: (a) As soon as possible, but no later than twelve (12) hours after discovery for emissions that represent a potential threat to human health or safety; (b) As soon as possible, but no later than forty-eight (48) hours after discovery for emissions which the Permittee wishes to claim as unavoidable pursuant to SWCAA 400-107(1); and (c) No later than thirty (30) calendar days after the end of the month of discovery for all other excess emissions. 	Facility-wide
27.	Deviations from permit conditions must be reported as soon as possible, but no later than 30 days after the end of the month during which the deviation is discovered.	Facility-wide
28.	All air quality related complaints received by the Permittee must be reported to SWCAA within three (3) calendar days of receipt. Complaint reports must include the date and time of the complaint, the name and contact information (if available) for the complainant, the nature of the complaint, and any actions taken by the Permittee to address the complaint.	Facility-wide
29.	A written report must be submitted to SWCAA at least seven (7) calendar days prior to the use of any new acid or solvent bath composition or chemicals, as well as any new product that contains VOCs, TAPs, or HAPs. The report must contain the following: (a) A description of the type of product, the Safety Data Sheets and Technical Data Sheets, and the location where the product will be used; (b) The date by which the Permittee intends to begin use of the product; (c) The amount (gallons or lbs) expected to be used; (d) A quantification of the change in VOC, HAP and TAP emissions from the use of the product; and (e) A summary of any applicable requirement that would apply as a result of the product. If use of the new product would cause any emission limit or SQER to be exceeded, the Permittee must submit an ADP application to SWCAA to request a revision to this ADP. The Permittee must not begin using the new product until a revised ADP is issued. Any new product that is only to be used for testing purposes with a quantity of five (5) gallons or less of usage does not need to be reported to SWCAA prior to use.	Facility-wide

Req. No.	Reporting Requirements	Equipment/ Activity ID No.
30.	The following emission-related information must be reported to SWCAA by March	Facility-wide
	15 th for the previous calendar year:	
	(a) The total amount of each solvent purchased and disposed;	
	(b) The total number of operating hours for each emergency generator	
	engine;	
	(c) The total number of hours arsine was in use with MOCVD reactors.	
	Alternatively, the permittee may record the total number of hours the	
	MOCVD reactors were actively processing wafers;	
	(d) The total number of hours phosphine was in use with MOCVD reactors.	
	Alternatively, the permittee may record the total number of hours the	
	MOCVD reactors were actively processing wafers;	
	(e) The total amount of time each acid bath was open;	
	(f) The total amount of natural gas used at the facility;	
	(g) The total amount of solvent used in the vapor degreaser (not including	
	waste from change out and cleaning);	
	(h) The total amount of solvent waste from vapor degreaser change outs and	
	cleaning; and	
	(i) Air emissions of criteria air pollutants, VOCs, TAPs, and HAPs.	
31.	Within ten (10) business days of initiating normal operation of the vapor	8
	degreaser, the Permittee must notify SWCAA that the unit is operating.	

3. General Provisions

Req. No.	General Provisions
A.	For the purpose of ensuring compliance with this ADP, duly authorized representatives of the Southwest Clean Air Agency must be permitted access to the Permittee's premises and the facilities being constructed, owned, operated and/or maintained by the Permittee for the purpose of inspecting said facilities. These inspections are required to determine the status of compliance with this ADP and applicable regulations and to perform or require such tests as may be deemed necessary.
В.	The provisions, terms, and conditions of this ADP bind the Permittee, its officers, directors, agents, servants, employees, successors and assigns, and all persons, firms, and corporations acting under or for the Permittee.
C.	The requirements of this ADP survive any transfer of ownership of the source or any portion thereof.
D.	This ADP must be posted conspicuously at or be readily available near the source.
E.	This ADP will be invalidated, in whole or in part, if construction or installation of any new or modified equipment has not commenced within eighteen (18) months from date of issuance, if construction is discontinued for a period of eighteen (18) months or more without prior SWCAA approval, or if construction is not completed within a reasonable time.

Req. No.	General Provisions
F.	This ADP does not supersede requirements of other agencies with jurisdiction and further, this ADP does not relieve the Permittee of any requirements of any other governmental agency. In addition to this ADP, the Permittee may be required to obtain permits or approvals from other agencies with jurisdiction.
G.	Compliance with the terms of this ADP does not relieve the Permittee from the responsibility of compliance with SWCAA General Regulations for Air Pollution Sources, previously issued Regulatory Orders, RCW 70A.15, Title 173 WAC or any other applicable emission control requirements, nor from the resulting liabilities and/or legal remedies for failure to comply.
Н.	If any provision of this ADP is held to be invalid, all unaffected provisions of the ADP will remain in effect and be enforceable.
I.	No change in this ADP will be made or be effective except as may be specifically set forth by written order of the Southwest Clean Air Agency upon written application by the Permittee for the relief sought.
J.	The Southwest Clean Air Agency may, in accordance with RCW 70A.15, impose such conditions as are reasonably necessary to ensure the maintenance of compliance with the terms of this ADP, the Washington Clean Air Act, and the applicable rules and regulations adopted under the Washington Clean Air Act.
K.	For the purposes of establishing if a condition of this ADP has been violated or is being violated, nothing in this ADP precludes the use, including the exclusive use, of any credible evidence or information relevant to whether a source would have been in compliance with applicable requirements if the appropriate performance or compliance test procedures or methods had been performed.