

STATE OF MISSISSIPPI AIR POLLUTION CONTROL PERMIT

TO CONSTRUCT AIR EMISSIONS EQUIPMENT

THIS CERTIFIES THAT

Rocket Lab USA, Stennis Archimedes Test Complex
Building 4130
Stennis Space Center, Hancock County, Mississippi

has been granted permission to construct air emissions equipment to comply with the emission limitations, monitoring requirements and other conditions set forth herein. This permit is issued in accordance with the provisions of the Mississippi Air and Water Pollution Control Law (Section 49-17-1 et. seq., Mississippi Code of 1972), and the regulations and standards adopted and promulgated thereunder.

MISSISSIPPI ENVIRONMENTAL QUALITY PERMIT BOARD

Krystal Rudolph

AUTHORIZED SIGNATURE

MISSISSIPPI DEPARTMENT OF ENVIRONMENTAL QUALITY

Issued: November 15, 2023

Permit No.: 1000-00059

SECTION 1. GENERAL CONDITIONS

- 1.1 This permit is for air pollution control purposes only.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D.)
- 1.2 Any activities not identified in the application are not authorized by this permit.
(Ref.: Miss. Code Ann. 49-17-29(1)(b).)
- 1.3 The knowing submittal of a permit application with false information may serve as the basis for the Permit Board to void the permit issued pursuant thereto or subject the applicant to penalties for operating without a valid permit pursuant to State Law.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(5).)
- 1.4 It is the responsibility of the applicant/permittee to obtain all other approvals, permits, clearances, easements, agreements, etc., which may be required including, but not limited to, all required local government zoning approvals or permits.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D.(6).)
- 1.5 The issuance of a permit does not release the permittee from liability for constructing or operating air emissions equipment in violation of any applicable statute, rule, or regulation of state or federal environmental authorities.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(7).)
- 1.6 It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of the permit, unless halting or reducing activity would create an imminent and substantial endangerment threatening the public health and safety of the lives and property of the people of this state.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(15)(a).)
- 1.7 The permit and/or any part thereof may be modified, revoked, reopened, and reissued, or terminated for cause. Sufficient cause for a permit to be reopened shall exist when an air emissions stationary source becomes subject to Title V. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.
(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(15)(b).)

- 1.8 The permit does not convey any property rights of any sort, or any exclusive privilege.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(15)(c).)
- 1.9 The permittee shall furnish to the Mississippi Department of Environmental Quality (MDEQ) within a reasonable time any information the MDEQ may request in writing to determine whether cause exists for modifying, revoking and reissuing, or terminating the permit or to determine compliance with the permit. Upon request, the permittee shall also furnish to the MDEQ copies of records required to be kept by the permit or, for information claimed to be confidential, the permittee shall furnish such records to the MDEQ along with a claim of confidentiality. The permittee may furnish such records directly to the Administrator along with a claim of confidentiality.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(15)(d).)
- 1.10 *Design and Construction Requirements:* The stationary source shall be designed and constructed so as to operate without causing a violation of an Applicable Rules and Regulations (without interfering with the attainment and maintenance of State and National Ambient Air Quality Standards) and such that the emission of air toxics does not result in an ambient concentration sufficient to adversely affect human health and well-being or unreasonably and adversely affect plant or animal life beyond the stationary source boundaries.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A.(1) – (3).)
- 1.11 The necessary facilities shall be constructed to prevent any wastes or other products or substances to be placed in a location where they are likely to cause pollution of the air or waters of the State without the proper environmental permits.

(Ref.: Miss. Code Ann. 49-17-29(1) and (2).)
- 1.12 *Fugitive Dust Emissions from Construction Activities:* The construction of the stationary source shall be performed in such a manner so as to reduce fugitive dust emissions from construction activities to a minimum.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.A.(4).)
- 1.13 *General Nuisance Clause:* The permittee shall not cause or allow the emission of particles or any contaminants in sufficient amounts or of such duration from any process as to be injurious to humans, animals, plants, or property, or to be a public nuisance, or create a condition of air pollution.
- (a) The permittee shall not cause the handling, transporting, or storage of any material in a manner which allows or may allow unnecessary amounts of particulate matter to become airborne.

- (b) When dust, fumes, gases, mist, odorous matter, vapors, or any combination thereof escape from a building or equipment in such a manner and amount as to cause a nuisance to property other than that from which it originated or to violate any other provision of this permit, the MDEQ may order such corrected in a way that all air and gases or air and gas-borne material leaving the building or equipment are controlled or removed prior to discharge to the open air.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.C.)

1.14 *Right of Entry:* The permittee shall allow the MDEQ Office of Pollution Control and the Mississippi Environmental Quality Permit Board and/or their representatives upon presentation of credentials:

- (a) To enter upon the permittee's premises where an air emission source is located or in which any records are required to be kept under the terms and conditions of this permit; and
- (b) At reasonable times to have access to and copy any records required to be kept under the terms and conditions of this permit; to inspect any monitoring equipment or monitoring method required in this permit; and to sample any air emissions.

(Ref.: Miss. Code Ann. 49-17-21)

1.15 *Permit Modification or Revocation:* After notice and opportunity for a hearing, the Permit Board may modify the permit or revoke it in whole or in part for good cause shown including, but not limited to:

- (a) Persistent violation of any of the terms or conditions of this permit;
- (b) Obtaining this permit by misrepresentation or failure to disclose fully all relevant facts; or
- (c) A change in federal, state, or local laws or regulations that require either a temporary or permanent reduction or elimination of previously authorized air emission.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.C.)

1.16 *Public Record and Confidential Information:* Except for data determined to be confidential under the Mississippi Air & Water Pollution Control Law, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the MDEQ Office of Pollution Control.

(Ref.: Miss. Code Ann. 49-17-39)

1.17 *Permit Transfer:* This permit shall not be transferred except upon approval of the Permit Board.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.16.B.)

- 1.18 *Severability*: The provisions of this permit are severable. If any provision of the permit (or the application of any provision of the permit to any circumstances) is challenged or held invalid, the validity of the remaining permit provisions and/or portions thereof (or their application to other persons or sets of circumstances) shall not be affected thereby.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.1.D.(7).)

- 1.19 *Permit Expiration*: The Permit to Construct will expire if construction does not begin within eighteen (18) months from the date of issuance, if construction is suspended for at least eighteen (18) months, or if construction is not completed within a reasonable time. The MDEQ may extend the 18-month period upon a satisfactory showing that an extension is justified.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C.(1)., R. 2.5.C.(4)., and R. 5.2.)

- 1.20 *Certification of Construction*: A new stationary source issued a Permit to Construct cannot begin operation until certification of construction by the permittee.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D.(3).)

- 1.21 *Beginning Operation*: After certification of construction by the permittee, the Permit to Construct shall be deemed to satisfy the requirement for a permit to operate until the date the application for issuance or modification of the Title V Operating Permit or the application for issuance or modification of the State Permit to Operate (whichever is applicable) is due. This provision is not applicable to a source excluded from the requirement for a permit to operate as provided by Mississippi Administrative Code, Part 2, Title 11, Chapter 2, Rule 2.13.G.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D.(4).)

- 1.22 *Application for a Permit to Operate*: The application for issuance or modification of the State Permit to Operate or the Title V Operating Permit (whichever is applicable) is due twelve (12) months after beginning operation or such earlier date or time as specified in the Permit to Construct. The Permit Board may specify an earlier date or time for submittal of the application. Beginning operation will be assumed to occur upon certification of construction, unless the permittee specifies differently in writing.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D.(5).)

- 1.23 *Operating Under a Permit to Construct*: Upon submittal of a timely and complete application for issuance or modification of a State Permit to Operate or a Title V Operating Permit (whichever is applicable), the applicant may continue to operate under the terms

and conditions of the Permit to Construct and in compliance with the submitted application until the Permit Board issues, modifies, or denies the Permit to Operate.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D(6).)

1.24 Except as otherwise specified herein, the permittee shall be subject to the following provisions with respect to upsets, start-ups, and shutdowns.

(a) Upsets (as defined in 11 Miss. Admin. Code Pt. 2, R. 1.2.)

- (1) For an upset, the Commission may pursue an enforcement action for noncompliance with an emission standard or other requirement of an applicable rule, regulation, or permit. In determining whether to pursue enforcement action, and/or the appropriate enforcement action to take, the Commission may consider whether the source has demonstrated through properly signed contemporaneous operating logs or other relevant evidence the following:
 - (i) An upset occurred and that the source can identify the cause(s) of the upset;
 - (ii) The source was at the time being properly operated;
 - (iii) During the upset the source took all reasonable steps to minimize levels of emissions that exceeded the emission standard or other requirement of an applicable rule, regulation, or permit;
 - (iv) That within five (5) working days of the time the upset began, the source submitted a written report to the Department describing the upset, the steps taken to mitigate excess emissions or any other non-compliance, and the corrective actions taken and;
 - (v) That as soon as practicable but no later than twenty-four (24) hours of becoming aware of an upset that caused an immediate adverse impact to human health or the environment beyond the source boundary or caused a general nuisance to the public, the source provided notification to the Department.
- (2) In any enforcement proceeding by the Commission, the source seeking to establish the occurrence of an upset has the burden of proof.
- (3) This provision is in addition to any upset provision contained in any applicable requirement.
- (4) These upset provisions apply only to enforcement actions by the Commission and are not intended to prohibit EPA or third-party enforcement actions.

- (b) Start-ups and Shutdowns (as defined in 11 Miss. Admin. Code Pt. 2, R. 1.2.)
- (1) Start-ups and shutdowns are part of normal source operation. Emission limitations apply during start-ups and shutdowns unless source specific emission limitations or work practice standards for start-ups and shutdowns are defined by an applicable rule, regulation, or permit.
 - (2) Where the source is unable to comply with existing emission limitations established under the State Implementation Plan (SIP) and defined in this Mississippi Administrative Code, Title 11, Part 2, Chapter 1, the Department will consider establishing source specific emission limitations or work practice standards for start-ups and shutdowns. Source specific emission limitations or work practice standards established for start-ups and shutdowns are subject to the requirements prescribed in Mississippi Administrative Code, Title 11, Part 2, Chapter 1, Rule 1.10.B.(2)(a) through (e).
 - (3) Where an upset as defined in Rule 1.2 occurs during start-up or shutdown, see the upset requirements above.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.10.)

1.25 *General Duty:* All air emission equipment shall be operated as efficiently as possible to provide the maximum reduction of air contaminants.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(10).)

1.26 *Compliance Testing:* Regarding compliance testing:

- (a) The results of any emissions sampling and analysis shall be expressed both in units consistent with the standards set forth in any Applicable Rules and Regulations of this permit and in units of mass per time.
- (b) Compliance testing will be performed at the expense of the permittee.
- (c) Each emission sampling and analysis report shall include but not be limited to the following:
 - (1) Detailed description of testing procedures;
 - (2) Sample calculation(s);
 - (3) Results; and
 - (4) Comparison of results to all Applicable Rules and Regulations and to emission limitations in the permit.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.6.B.(3), (4), and (6).)

SECTION 2 EMISSION POINT DESCRIPTION

The permittee is authorized to construct, modify, and operate (upon certification of construction), air emissions equipment as described in the following table:

Emission Point	Description
AA-000	Facility-Wide [Rocket Lab USA, Stennis Archimedes Test Complex]
AA-001	Horizontal, Methane Fuel-Fired Test Cell Rocket Engine
AA-002	Air-Assisted Flare [equipped with a propane-fired pilot light system with a “jet assist” mode; controls boiloff emissions from “stand-by” and “testing” modes]

SECTION 3 EMISSION LIMITATIONS AND STANDARDS

Emission Point(s)	Applicable Requirement	Condition Number	Pollutant / Parameter	Limitation / Standard
AA-000	11 Miss. Admin. Code Pt. 2, R. 1.3.A.	3.1	Opacity (as smoke)	≤ 40%
	11 Miss. Admin. Code Pt. 2, R. 1.3.B.	3.2	Opacity	≤ 40%
AA-001	11 Miss. Admin. Code Pt. 2, R. 1.3.D.(1)(b).	3.3	PM (filterable)	$E = 0.8808 \cdot (I^{-0.1667})$
	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(10).	3.4	Fuel Restriction	Only Combust Liquefied Natural Gas
AA-002	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(10).	3.5	LNG	Operational Requirements

3.1 Emission Point AA-000 (Facility-Wide), except as otherwise specified herein, the permittee shall not cause or allow the emission of smoke into the open air from a point source or from any industrial process on-site that exceeds forty (40) percent opacity subject to the following exceptions:

- (a) Start-up operations may produce emissions that exceed 40% opacity for up to fifteen (15) minutes per start-up in any one (1) hour and not to exceed three (3) start-ups per stack in any twenty-four (24) hour period.
- (b) Emissions resulting from soot blowing operations shall be permitted provided such emissions do not exceed sixty (60) percent opacity and provided further that the aggregation duration of such emissions during any twenty-four (24) hour period does not exceed ten (10) minutes per billion BTU gross heating value of fuel in any one hour.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.A.)

3.2 For Emission Point AA-000 (Facility-Wide), except as otherwise specified, the permittee shall not discharge into the ambient air from a point source any contaminant of such opacity as to obscure an observer's view to a degree in excess of 40% opacity. This shall not apply to vision obscuration caused by uncombined water droplets.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.B.)

3.3 For Emission Point AA-001, the maximum permissible emission of ash particulate matter (PM) from any fossil fuel burning installation with a heat input rate equal to or greater than ten (10) MMBTU per hour but less than 10,000 MMBTU per hour shall not exceed an emission rate as determined by the following relationship:

$$E = 0.8808 \cdot (I^{0.1667})$$

where “E” is the emission rate in pounds per MMBTU per hour heat input and “I” is the heat input in MMBTU per hour.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 1.3.D.(1)(b).)

- 3.4 For Emission Point AA-001, the permittee shall only combust liquefied natural gas as the primary fuel source for engine testing operations.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(10).)

- 3.5 For Emission Point AA-002, the permittee shall operate the flare in accordance with the following specifications to achieve (at a minimum) ninety-eight (98) percent destruction efficiency of boil-off emissions from the LNG storage tanks:

- (a) The flare shall be operated at all times when emissions may be vented to the control device;
- (b) The flare shall be operated and maintained according to the manufacturer’s specifications and recommendations;
- (c) The flare shall be operated as to generate no visible emissions (as determined by EPA Test Method 22), except for periods not to exceed a total of five (5) minutes during any two (2) consecutive hours; and
- (d) The permittee shall maintain a pilot flame at all times when emissions may be vented to the flare.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(10).)

SECTION 4 WORK PRACTICE STANDARDS

THIS SECTION WAS INTENTIONALLY LEFT BLANK BECAUSE THERE ARE NO APPLICABLE WORK PRACTICE STANDARDS.

SECTION 5 MONITORING AND RECORDKEEPING REQUIREMENTS

Emission Point(s)	Applicable Requirement	Condition Number	Pollutant / Parameter	Monitoring / Recordkeeping Requirement
AA-000	11 Miss. Admin. Code Pt. 2, R. 2.9.	5.1	Recordkeeping	Maintain Records for a Minimum of Five (5) Years
AA-001	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).	5.2	Number of Engine Tests	Monitoring Requirements
		5.3	CO	Develop, Implement, and Maintain a Monitoring Plan
AA-002	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).	5.4	LNG	Continuously Monitor the Presence of the Flare Pilot Flame
		5.5	Opacity	Perform a Visible Emissions Observation Monthly

5.1 For Emission Point AA-000 (Facility-Wide), except as otherwise specified or limited herein, the permittee shall retain all required records, monitoring data, supporting information, and reports for a period of at least five (5) years from the date of the monitoring sample, measurement, report, or application. Supporting information includes all calibration and maintenance records, all original strip-chart recordings or other data from continuous monitoring instrumentation, and copies of all reports required by this permit. Copies of such records shall be submitted to the MDEQ as required by “Applicable Rules and Regulations” of this permit upon request.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.9.)

5.2 For Emission Point AA-001, the permittee shall monitor and record the number of engine tests conducted on both a monthly and rolling 12-month basis.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

5.3 For Emission Point AA-001, the permittee shall evaluate the actual emission of carbon monoxide (CO) from the initial engine test conducted on-site. Additionally, the permittee shall develop, implement, and maintain a plan that details a site-specific protocol for evaluating CO emissions during the initial engine test. The plan shall include the following information (at a minimum):

- (a) The location for sampling emissions (in terms of the distance from the engine exhaust point);
- (b) The sample collection method;

- (c) The test method(s) for analyzing a collected sample; and
- (d) The proposed ambient air conditions and engine operating parameters for sampling.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

- 5.4 For Emission Point AA-002, the permittee shall continuously monitor and record the presence of the flare pilot flame by use of a thermocouple or any other equivalent heat-sensing device to detect the presence of a flame.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

- 5.5 For Emission Point AA-002, the permittee shall demonstrate compliance with the opacity limit specified in Condition 3.5(c) by performing a visible emissions test on the exhaust of the flare on a monthly basis in accordance with EPA Test Method 22 and the following requirements:

- (a) The permittee shall conduct a visible emission test while gases are being vented to a flare;
- (b) The observation period for a visible emission test event shall be at least fifteen (15) consecutive minutes; and
- (c) The permittee shall monitor and maintain the gas flow rate to a flare during a visible emissions test.

If visible emissions are detected for more than one (1) minute during a test, the permittee shall conduct manufacturer-recommended repairs and/or implement best combustion engineering practices on the flare. The permittee shall perform a follow-up visible emissions test in accordance with the requirements of this condition during the first period in which gases are vented to the flare after the completion of repairs or best combustion engineering practices (as applicable).

The permittee shall maintain documentation that details the date / time span of each test, the results of each test (including any follow-up test – as applicable), the duration (in minutes) in which visible emissions are detected (as applicable), and an outline of any repairs and/or best combustion engineering practices conducted (as applicable).

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

SECTION 6 REPORTING REQUIREMENTS

Emission Point(s)	Applicable Requirement	Condition Number	Reporting Requirement
AA-000	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).	6.1(a)	Report a Deviation from Requirements Within Five (5) Days
		6.1(b)	Submit Documents Certified by a Responsible Official
	11 Miss. Admin. Code Pt. 2, R. 2.5.C.(2).	6.1(c)	Submit a Notification on the Commencement of Construction
	11 Miss. Admin. Code Pt. 2, R. 2.5.C.(3).	6.1(d)	Submit a Notification When Construction Does Not Begin Within 18 Months (As Applicable)
	11 Miss. Admin. Code Pt. 2, R. 2.5.D.(1). and (3).	6.1(e)	Submit a Notification on the Completion of Construction
	11 Miss. Admin. Code Pt. 2, R. 2.5.D.(2).	6.1(f)	Submit a Notification on a Change in Approved Construction Plans / Specifications
AA-001	11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).	6.2	Submit the Monitoring Plan to MDEQ

6.1 General Reporting Requirements:

- (a) Except as otherwise specified herein, the permittee shall report all deviations from permit requirements, including those attributable to upsets, the probable cause of such deviations, and any corrective action(s) and/or preventive measures taken. The report shall be submitted to the MDEQ within five (5) working days of the time the deviation began.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

- (b) Any document required by this permit to be submitted to the MDEQ shall contain a certification signed by a Responsible Official (RO) that affirms (based on information and belief formed after reasonable inquiry) the statements and information in the document are true, accurate, and complete.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)

- (c) The permittee shall notify the MDEQ in writing that construction has begun no later than fifteen (15) days after actual construction commences.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C.(2).)

- (d) The permittee shall notify the MDEQ in writing when construction does not begin within eighteen (18) months of issuance or if construction is suspended for 18 months or more.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.C.(3).)

- (e) Upon the completion of construction / installation of all permitted emission sources and prior to commencing operation, the permittee shall notify the MDEQ in writing that construction / installation has been completed in accordance with the approved plans and specifications on file no later than fifteen (15) days after completing the actual construction / installation.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D.(1). and (3).)

- (f) The MDEQ shall be promptly notified in writing of any change in construction from the previously approved plans and specifications or permit. If the MDEQ determines the changes are substantial, it may require the submission of a new application to construct with “as built” plans and specifications. Notwithstanding any provision herein to the contrary, the acceptance of an “as built” application shall not constitute a waiver of the right to seek compliance penalties pursuant to State Law.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.5.D.(2).)

- 6.2 For Emission Point AA-001, the permittee shall submit the plan specified in Condition 5.3 to the MDEQ no later than fifteen (15) days before the actual date of the initial engine test.

(Ref.: 11 Miss. Admin. Code Pt. 2, R. 2.2.B.(11).)