

ADMINISTRATIVE RECORD

Pacific Concrete Cutting & Coring, Inc.

Application No. 0907-01 for Initial Permit

300 TPH Crushing Plant with 456 HP Diesel Engine

Located At: Various Temporary Sites, State of Hawaii

Temporary CSP No. 0907-01-CT

TABLE OF CONTENTS

1. Public Notice
2. Draft Permit
3. Draft Review Summary
4. Application and Supporting Information

Public Notice

**REQUEST FOR PUBLIC COMMENTS
ON DRAFT AIR PERMITS
REGULATING THE EMISSIONS OF AIR POLLUTANTS**

(Docket No. 26-CA-PA-04)

Pursuant to Hawaii Revised Statutes (HRS), Chapter 342B-13 and Hawaii Administrative Rules (HAR), Chapter 11-60.1, the Department of Health, State of Hawaii (DOH), is requesting public comments on the following **DRAFT PERMITS** presently under review for:

- 1) **Temporary Covered Source Permit (CSP) No. 0872-01-CT**
Application Nos. 0872-02 for Minor Modification and 0872-03 for Renewal
Pacific Concrete Cutting & Coring, Inc. (PCCC)
Crushing and Screening Plant
Located At: Various Temporary Sites, State of Hawaii
Initial Location: Ehiku Street, Lihue, Kauai
UTM: 4Q; 461,430 m E, 2,431,121 m N, (NAD-83)
- 2) **Temporary CSP No. 0907-01-CT**
Application No. 0907-01 for Initial Permit
Pacific Concrete Cutting & Coring, Inc.
Crushing Plant with a Diesel Engine
Located At: Various Temporary Sites, State of Hawaii
Initial Location: PCCC Baseyard, Ehiku Street, Lihue, Island of Kauai
Location 1 UTM: 4Q; 461,375 m E, 2,431,075 m N, (NAD-83)
Location 2 UTM: 4Q; 461,406 m E, 2,431,095 m N, (NAD-83)

The **DRAFT PERMITS** are described as follows:

- 1) **Temporary CSP No. 0872-01-CT**

The issuance of Temporary CSP No. 0872-01-CT will grant conditional approval for the continued operation of a 353 tons per hour (TPH) Powerscreen impact crusher, and a 441 TPH Powerscreen screener, and the addition of a 441 TPH Powerscreen screener. Water suppression will be used as necessary to minimize fugitive emissions from stone crushing and recycling operations. The impact crusher and screeners are subject to 40 Code of Federal Regulations (CFR), Part 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants. This permit, if approved, would supersede Temporary CSP No. 0872-01-CT issued to PCCC on April 7, 2021.
- 2) **Temporary CSP No. 0907-01-CT**

The issuance of Temporary CSP No. 0907-01-CT will grant conditional approval for the operation of a portable 300 TPH Eagle impact crusher equipped with a

456 horsepower (hp) diesel engine. Water suppression will be used as necessary to minimize fugitive emissions from stone and concrete crushing and recycling operations. The crusher is subject to 40 CFR, Part 60, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants. The diesel engine is subject to 40 CFR, Part 60, Subpart IIII, Standards of Performance for Stationary Compression Ignition Internal Combustion Engines, and 40 CFR, Part 63, Subpart ZZZZ, National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

The **ADMINISTRATIVE RECORDS**, consisting of the **APPLICATIONS** and non-confidential supporting material from the applicant, the permit review summaries, and the **DRAFT PERMITS**, are available for public inspection online at: <http://health.hawaii.gov/cab/public-notice/> and at the following locations during regular office hours, Monday through Friday, 7:45 a.m. to 4:15 p.m.:

Island of Oahu:

State of Hawaii
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, Hawaii 96782

Island of Kauai:

Kauai District Health Office
Department of Health
3040 Umi Street, Lihue, Kauai

All comments on the draft permits and any request for a public hearing must be in writing, and must be postmarked or received by **June 11, 2026**, and may be:

- Emailed to doh.cabpubliccomments@doh.hawaii.gov; or
- Addressed to the Clean Air Branch at the above Oahu address.

Any person may request a public hearing by submitting a written request that explains the party's interest and the reasons why a hearing is warranted. The DOH may hold a public hearing if a hearing would aid in DOH's decision. If a public hearing is warranted, a public notice for the hearing will be published at least thirty (30) days in advance of the hearing.

Interested persons may obtain copies of the administrative record or parts thereof at a copying cost of five (5) cents per page. Please send written requests to the Clean Air Branch listed above or call Mr. Ukris Wongse-ont at the Clean Air Branch at (808) 586-4200.

Comments on the draft permit(s) should address, but need not be limited to, the permit

conditions and the facility's compliance with federal and state air pollution laws, including: (1) the National and State Ambient Air Quality Standards; and (2) HRS, Chapter 342B and HAR, Chapter 11-60.1.

The DOH will make a final decision on the permit after considering all comments and will send notice of the final decision to each person who has submitted comments or requested such notice.

Kenneth S. Fink, MD, MGA, MPH
Director of Health

Draft Permit

DATE

CERTIFIED MAIL
RETURN RECEIPT REQUESTED
(xxxx xxxx xxxx xxxx xxxx)

26-xxxE CAB
File No. 0907

Mr. Eli Brainerd
President
Pacific Concrete Cutting
& Coring, Inc.
P.O. Box 662261
Lihue, Hawaii 96766

Dear Mr. Brainerd:

SUBJECT: Temporary Covered Source Permit (CSP) No. 0907-01-CT
Application No. 0907-01 for Initial Permit
Pacific Concrete Cutting & Coring, Inc.
300 TPH Crushing Plant with 456 HP Diesel Engine
Located At: Various Temporary Sites, State of Hawaii
Initial Location: Ehiku Street, Lihue, Island of Kauai
Location 1 UTM: 4Q; 461,375 m E, 2,431,075 m N (NAD-83)
Location 2 UTM: 4Q; 461,406 m E, 2,431,095 m N (NAD-83)
Date of Expiration: DATE

The subject temporary CSP is issued in accordance with Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1. The issuance of this permit is based on the plans, specifications, and information that you submitted as part of your application received on April 3, 2024, and additional information on June 4, 2024, June 10, 2024, September 27, 2024, and November 8, 2024.

The temporary CSP is issued subject to the conditions/requirements set forth in the following attachments:

Attachment I: Standard Conditions
Attachment II: Special Conditions
Attachment II - INSIG: Special Conditions - Insignificant Activities
Attachment III: Annual Fee Requirements
Attachment IV: Annual Emissions Reporting Requirements

Mr. Eli Brainerd
DATE
Page 2

The following forms are enclosed for your use and submittal as required:

Compliance Certification Form
Annual Emissions Report Form: Crushing Plant and Diesel Engine
Monitoring Report Form: Fuel Certification
Monitoring Report Form: Opacity Exceedances
Change of Location Request for a Temporary Source

The following are enclosed for your use in monitoring visible emissions:

Visible Emissions Form Requirements, State of Hawaii
Visible Emissions Form

This permit: (a) shall not in any manner affect the title of the premises upon which the equipment is to be located; (b) does not release the permittee from any liability for any loss due to personal injury or property damage caused by, resulting from or arising out of the design, installation, maintenance, or operation of the equipment; and (c) in no manner implies or suggests that the Department of Health, Clean Air Branch (herein after referred to as Department), or its officers, agents, or employees, assumes any liability, directly or indirectly, for any loss due to personal injury or property damage caused by, resulting from or arising out of the design, installation, maintenance, or operation of the equipment.

If you have any questions, please contact Mr. Ukris Wongse-ont of the Clean Air Branch at (808) 586-4200.

Sincerely,

JOANNA L. SETO, P.E., CHIEF
Environmental Management Division

UW:tkg

Enclosures

**ATTACHMENT I: STANDARD CONDITIONS
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

This permit is granted in accordance with the HAR, Title 11, Chapter 60.1, Air Pollution Control, and is subject to the following standard conditions:

1. Unless specifically identified, the terms and conditions contained in this permit are consistent with the applicable requirement, including form, on which each term or condition is based.

(Auth.: HAR §11-60.1-90)
2. This permit, or a copy thereof, shall be maintained at or near the source and shall be made available for inspection upon request. The permit shall not be willfully defaced, altered, forged, counterfeited, or falsified.

(Auth.: HAR §11-60.1-6; SIP §11-60-11)²
3. This permit is not transferable whether by operation of law or otherwise, from person to person, from place to place, or from one piece of equipment to another without the approval of the Department, except as provided in HAR, Section 11-60.1-91.

(Auth.: HAR §11-60.1-7; SIP §11-60-9)²
4. A request for transfer from person to person shall be made on forms furnished by the Department.

(Auth.: HAR §11-60.1-7)
5. In the event of any changes in control or ownership of the facilities to be constructed or modified, this permit shall be binding on all subsequent owners and operators. The permittee shall notify the succeeding owner and operator of the existence of this permit and its conditions by letter, copies of which will be forwarded to the Department and the U.S. Environmental Protection Agency (EPA), Region 9.

(Auth.: HAR §11-60.1-5, §11-60.1-7, §11-60.1-94)
6. The facility covered by this permit shall be constructed and operated in accordance with the application, and any information submitted as part of the application, for the temporary CSP. There shall be no deviation unless additional or revised plans are submitted to and approved by the Department, and the permit is amended to allow such deviation.

(Auth.: HAR §11-60.1-2, §11-60.1-4, §11-60.1-82, §11-60.1-84, §11-60.1-90)

7. This permit (a) does not release the permittee from compliance with other applicable statutes of the State of Hawaii, or with applicable local laws, regulations, or ordinances, and (b) shall not constitute, nor be construed to be an approval of the design of the covered source.

(Auth.: HAR §11-60.1-5, §11-60.1-82)

8. The permittee shall comply with all the terms and conditions of this permit. Any permit noncompliance constitutes a violation of HAR, Chapter 11-60.1, and the Clean Air Act and is grounds for enforcement action; for permit termination, suspension, reopening, or amendment; or for denial of a permit renewal application.

(Auth.: HAR §11-60.1-3, §11-60.1-10, §11-60.1-19, §11-60.1-90)

9. If any term or condition of this permit becomes invalid as a result of a challenge to a portion of this permit, the other terms and conditions of this permit shall not be affected and shall remain valid.

(Auth.: HAR §11-60.1-90)

10. The permittee shall not use as a defense in an enforcement action that it would have been necessary to halt or reduce the permitted activity to maintain compliance with the terms and conditions of this permit.

(Auth.: HAR §11-60.1-90)

11. This permit may be terminated, suspended, reopened, or amended for cause pursuant to HAR, Sections 11-60.1-10 and 11-60.1-98, and Hawaii Revised Statutes (HRS), Chapter 342B-27, after affording the permittee an opportunity for a hearing in accordance with HRS, Chapter 91.

(Auth.: HAR §11-60.1-3, §11-60.1-10, §11-60.1-90, §11-60.1-98)

12. The filing of a request by the permittee for the termination, suspension, reopening, or amendment of this permit, or of a notification of planned changes or anticipated noncompliance does not stay any permit condition.

(Auth.: HAR §11-60.1-90)

13. This permit does not convey any property rights of any sort, or any exclusive privilege.

(Auth.: HAR §11-60.1-90)

14. The permittee shall notify the Department and U.S. EPA, Region 9, in writing of the following dates:
- The **anticipated date of initial start-up** for each emission unit of a new source or significant modification not more than sixty (60) days or less than thirty (30) days prior to such date;
 - The **actual date of construction commencement** within fifteen (15) days after such date; and
 - The **actual date of start-up** within fifteen (15) days after such date.

(Auth.: HAR §11-60.1-90)

15. The permittee shall furnish, in a timely manner, any information or records requested in writing by the Department to determine whether cause exists for terminating, suspending, reopening, or amending this permit, or to determine compliance with this permit. Upon request, the permittee shall also furnish to the Department copies of records required to be kept by the permittee. For information claimed to be confidential, the Director of Health (Director) may require the permittee to furnish such records not only to the Department but also directly to the U.S. EPA, Region 9, along with a claim of confidentiality.

(Auth.: HAR §11-60.1-14, §11-60.1-90)

16. The permittee shall notify the Department in writing, of the **intent to shut down air pollution control equipment for necessary scheduled maintenance** at least twenty-four (24) hours prior to the planned shutdown. The submittal of this notice shall not be a defense to an enforcement action. The notice shall include the following:
- Identification of the specific equipment to be taken out of service, as well as its location and permit number;
 - The expected length of time that the air pollution control equipment will be out of service;
 - The nature and quantity of emissions of air pollutants likely to be emitted during the shutdown period;
 - Measures such as the use of off-shift labor and equipment that will be taken to minimize the length of the shutdown period; and
 - The reasons why it would be impossible or impractical to shut down the source operation during the maintenance period.

(Auth.: HAR §11-60.1-15; SIP §11-60-16)²

17. **In the event any emission unit, air pollution control equipment, or related equipment malfunctions or breaks down in such a manner as to cause the emission of air pollutants in violation of HAR, Chapter 11-60.1, or this permit**, the permittee shall immediately notify the Department of the malfunction or breakdown, unless the protection of personnel or public health or safety demands immediate attention to the malfunction or

breakdown and makes such notification infeasible. In the latter case, the notice shall be provided as soon as practicable. Within five (5) working days of this initial notification, the permittee shall also submit, in writing, the following information:

- a. Identification of each affected emission point and each emission limit exceeded;
- b. Magnitude of each excess emission;
- c. Time and duration of each excess emission;
- d. Identity of the process or control equipment causing the excess emission;
- e. Cause and nature of each excess emission;
- f. Description of the steps taken to remedy the situation, prevent a recurrence, limit the excessive emissions, and assure that the malfunction or breakdown does not interfere with the attainment and maintenance of the National Ambient Air Quality Standards and State Ambient Air Quality Standards;
- g. Documentation that the equipment or process was at all times maintained and operated in a manner consistent with good practice for minimizing emissions; and
- h. A statement that the excess emissions are not part of a recurring pattern indicative of inadequate design, operation, or maintenance.

The submittal of these notices shall not be a defense to an enforcement action.

(Auth.: HAR §11-60.1-16; SIP §11-60-16)²

18. The permittee may request confidential treatment of any records in accordance with HAR, Section 11-60.1-14.

(Auth.: HAR §11-60.1-14, §11-60.1-90)

19. This permit shall become invalid with respect to the authorized construction if construction is not commenced as follows:

- a. Within eighteen (18) months after the permit takes effect, is discontinued for a period of eighteen (18) months or more, or is not completed within a reasonable time.
- b. For phased construction projects, each phase shall commence construction within eighteen (18) months of the projected and approved commencement dates in the permit. This provision shall be applicable only if the projected and approved commencement dates of each construction phase are defined in Attachment II, Special Conditions, of this permit.

(Auth.: HAR §11-60.1-9, §11-60.1-90)

20. The Department may extend the time periods specified in Standard Condition No. 19 upon a satisfactory showing that an extension is justified. Requests for an extension shall be submitted in writing to the Department.

(Auth.: HAR §11-60.1-9, §11-60.1-90)

21. The permittee shall submit fees in accordance with HAR, Chapter 11-60.1, Subchapter 6.

(Auth.: HAR §11-60.1-90)

22. All certifications shall be in accordance with HAR, Section 11-60.1-4.

(Auth.: HAR §11-60.1-4, §11-60.1-90)

23. The permittee shall allow the Director, the Regional Administrator for the U.S. EPA and/or an authorized representative, upon presentation of credentials or other documents required by law:

- a. To enter the premises where a source is located or emission-related activity is conducted, or where records must be kept under the conditions of this permit and inspect at reasonable times all facilities, equipment, including monitoring and air pollution control equipment, practices, operations, or records covered under the terms and conditions of this permit and request copies of records or copy records required by this permit; and
- b. To sample or monitor at reasonable times substances or parameters to ensure compliance with this permit or applicable requirements of HAR, Chapter 11-60.1.

(Auth.: HAR §11-60.1-11, §11-60.1-90)

24. Within thirty (30) days of **permanent discontinuance of the construction, modification, relocation, or operation of a covered source covered by this permit**, the discontinuance shall be reported in writing to the Department by a responsible official of the source.

(Auth.: HAR §11-60.1-8; SIP §11-60-10)²

25. Each permit renewal application shall be submitted to the Department and the U.S. EPA, Region 9, no less than twelve (12) months and no more than eighteen (18) months prior to the permit expiration date. The Director may allow a permit renewal application to be submitted no less than six (6) months prior to the permit expiration date, if the Director determines that there is reasonable justification.

(Auth.: HAR §11-60.1-101; 40 CFR §70.5(a)(1)(iii))¹

26. The terms and conditions included in this permit, including any provision designed to limit a source's potential to emit, are federally enforceable unless such terms, conditions, or requirements are specifically designated as not federally enforceable.

(Auth.: HAR §11-60.1-93)

27. The compliance plan and compliance certification submittal requirements shall be in accordance with HAR, Sections 11-60.1-85 and 11-60.1-86. As specified in HAR, Section 11-60.1-86, the compliance certification shall be submitted to the Department and the U.S. EPA, Region 9, once per year or more frequently as set by any applicable requirement.

(Auth.: HAR §11-60.1-90)

28. **Any document (including reports) required to be submitted by this permit shall be certified as being true, accurate, and complete by a responsible official in accordance with HAR, Sections 11-60.1-1 and 11-60.1-4, and shall be mailed to the following address:**

**State of Hawaii
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782**

Upon request and as required by this permit, all correspondence to the State of Hawaii Department of Health associated with this temporary CSP shall have duplicate copies forwarded to:

**Manager
Enforcement Division, Air Section
U.S. Environmental Protection Agency, Region 9
75 Hawthorne Street, ENF-2-1
San Francisco, CA 94105**

(Auth.: HAR §11-60.1-4, §11-60.1-90)

29. To determine compliance with submittal deadlines for time-sensitive documents, the postmark date of the document shall be used. If the document was hand-delivered, the date received ("stamped") at the Clean Air Branch shall be used to determine the submittal date.

(Auth.: HAR §11-60.1-5, §11-60.1-90)

¹The citations to the Code of Federal Regulations (CFR) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the CFR. Due to the integration of the preconstruction and operating permit requirements, permit conditions may incorporate more stringent requirements than those set forth in the CFR.

²The citations to the State Implementation Plan (SIP) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the SIP.

**ATTACHMENT II: SPECIAL CONDITIONS
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

In addition to the Standard Conditions of the temporary CSP, the following Special Conditions shall apply to the permitted facility:

Section A. Equipment Description

1. This permit encompasses the following equipment and associated appurtenances:

Crushing Plant

- a. 300 TPH Eagle impact crusher, Ultramax 1200-CV Series, Model UM-25, Model No. 33895000, Serial No. 32094, with water spray system, manufactured in 2023 (portable), powered by a 456 horsepower (hp) Caterpillar Diesel Engine (DE), Model C9.3B, Serial No. NGH06326, Manufactured in 2023;
- b. Various conveyors; and
- c. Water Sprays.

(Auth.: HAR §11-60.1-3)

2. An identification tag or name plate shall be displayed on the equipment listed above to show the manufacturer, model no., and serial no., as applicable. The identification tag or name plate shall be permanently attached to the equipment at a conspicuous location.

(Auth.: HAR §11-60.1-5, §11-60.1-90)

Section B. Applicable Federal Regulations

1. The crusher and conveyors are subject to the provisions of the following federal regulations:

- a. 40 Code of Federal Regulations (CFR) Part 60, Standards of Performance for New Stationary Sources, Subpart A, General Provisions; and
- b. 40 CFR Part 60, Standards of Performance for New Stationary Sources, Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants.

(Auth.: HAR §11-60.1-3, §11-60.1-90, §11-60.1-161; 40 CFR §60.1, §60.670)¹

2. The 456 hp Caterpillar DE is subject to the provisions of the following federal regulations:

- a. 40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS), Subpart A - General Provisions;
- b. 40 CFR Part 60, NSPS, Subpart IIII - Standards of Performance for Stationary Compression Ignition Internal Combustion Engines;
- c. 40 CFR Part 63, National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAP), Subpart A - General Provisions; and

- d. 40 CFR Part 63, NESHAP for Source Categories, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines.

(Auth.: HAR §11-60.1-3, §11-60.1-90, §11-60.1-161; 40 CFR §60.1, §60.4200 §63.1, §63.6585)¹

- 3. The permittee shall comply with all applicable requirements of these standards, including all operational and emission limits, monitoring and recordkeeping, notification and reporting, testing, and change of location requirements. The major requirements of these standards are detailed in the special conditions of this permit.

(Auth.: HAR §11-60.1-3, §11-60.1-90, §11-60.1-161; 40 CFR Part 60)¹

Section C. Operational and Emissions Limitations

1. Fugitive Emission Limits

- a. The permittee shall not cause to be discharged into the atmosphere from the crusher, fugitive emissions which exhibit greater than twelve percent (12%) opacity.
- b. The permittee shall not cause to be discharged into the atmosphere from any transfer point on the belt conveyors or from any other affected facility, fugitive emissions which exhibit greater than seven percent (7%) opacity.

(Auth.: HAR §11-60.1-3, §11-60.1-90, §11-60.1-161; 40 CFR §60.672)¹

2. Fugitive Emission Control

- a. The permittee shall not cause or permit fugitive dust to become airborne without taking reasonable precautions and shall not cause or permit the discharge of visible emissions (VE) of fugitive dust beyond the lot line of the property boundary on which the emissions originate.
- b. The permittee shall take measures to control and minimize fugitive dust (e.g., wet suppression, enclosures, dust screens, etc.) at all material transfer points, stockpiles, plant roads, and throughout the facility. The Department may at any time require the permittee to further abate fugitive dust emissions if an inspection indicates poor or insufficient control.
- c. The water spray system shall be maintained and utilized, as necessary, during operation of the Crushing Plant to ensure compliance with the fugitive emission limits. The Department at any time may require continuous operation of the water sprays and/or additional water sprays or manual water spraying at pertinent locations if an inspection indicates that more fugitive dust control is needed.

- d. The Crushing Plant shall not be operated if observation, or the routine inspection required in Attachment II, Special Condition No. D.3.b, indicates a significant drop in water flow rate and/or water pressure, plugged nozzle(s), leak in the piping system, or other problems which affect the efficiency of the water spray system. The permittee shall investigate and correct the problem before resuming operations. The normal operating water pressure (psi) and/or flow rate (gal/min) for the water spray system shall be established during the performance test conducted pursuant to Attachment II, Special Conditions, Section F, and may be incorporated into the permit.
- e. The water spray system shall be properly maintained and kept in good operating condition at all times with scheduled inspections and maintenance as needed to ensure compliance with the fugitive emission limits.
- f. Water spray system and/or a water truck shall be maintained and utilized, as necessary, to minimize fugitive dust from plant operations (e.g., haul roads, stockpiles, material transfer points, etc.).

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-33, §11-60.1-90)

3. Minimum Stack Height

The exhaust stack of the 456 hp Caterpillar DE shall be at a minimum height of 14.5 feet above ground elevation.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

4. Fuel Limits

The DE shall be fired only on ultra-low sulfur diesel (ULSD) fuel with the following specifications:

- a. Maximum sulfur content not to exceed 0.0015% by weight; and
- b. Minimum cetane index of forty (40) or maximum aromatic content of thirty-five (35) volume percent.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-38, §11-60.1-90; 40 CFR §60.4207)

5. Visible Emissions

For any six (6) minute averaging period, the DE shall not exhibit VE of twenty percent (20%) opacity or greater, except as follows: during start-up, shutdown, or equipment breakdown, the DE may exhibit VE not greater than sixty percent (60%) opacity for a period aggregating not more than six (6) minutes in any sixty (60) minute period.

(Auth.: HAR §11-60.1-3, §11-60.1-32, §11-60.1-90; SIP §11-60-24)²

6. Maintenance

The Crushing Plant, water spray system, and DE shall be properly maintained and kept in good operating condition at all times with scheduled inspections and maintenance as recommended by the manufacturer, and as needed.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

7. Change of Locations

- a. The operation of the equipment covered by this temporary CSP shall involve at least one (1) location change during the term of this permit. **Moving within a single property is not considered a location change.**
- b. Location changes of the equipment shall be in accordance with Attachment II, Special Conditions, Section G. For each change in location, the Department reserves the right to impose additional operational controls and restrictions if a site evaluation indicates the controls and/or restrictions are necessary.

(Auth.: HAR §11-60.1-3, §11-60.1-81, §11-60.1-91)

8. Alternate Operating Scenario

- a. The permittee may replace the DE with a temporary replacement unit if repair reasonably warrants the removal of the DE from its site (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation) and the following provisions are adhered to:
 - i. A written request for the replacement unit shall be submitted in accordance with Attachment II, Special Condition No. E.7.a;
 - ii. The temporary replacement unit must be similar in size with equal or lesser emissions with the exception of an increase in carbon monoxide (CO) emissions not to equal or exceed five (5) tons per year. The Department may allow the increase in CO emissions provided the permittee demonstrates the increase does not affect the source's major source status, compliance with the ambient air quality standards, or result in the applicability of any new requirements;
 - iii. The temporary replacement unit shall comply with all applicable conditions including all air pollution control equipment requirements, operating restrictions, and emission limits;
 - iv. The installation and operation of the temporary replacement unit (and any approved successive replacements) shall not exceed twelve (12) consecutive months, such that the total period in which the DE is removed from service does not exceed twelve (12) consecutive months;
 - v. The DE shall be repaired and returned to service at the same location in a timely manner; and
 - vi. Written documentation on the removal and return information shall be submitted in accordance with Attachment II, Special Condition No. E.7.b.

- b. The Department may require an ambient air quality assessment of the temporary replacement unit and/or provide a conditional approval to impose additional monitoring, testing, recordkeeping, and reporting requirements to ensure the temporary replacement unit is in compliance with the applicable requirements of the permitted unit being temporarily replaced.
- c. Records in a log shall be maintained in accordance with Attachment II, Special Condition No. D.8.
- d. The terms and conditions under each operating scenario shall meet all applicable requirements, including the special conditions of this permit.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

Section D. Monitoring and Recordkeeping Requirements

1. Records

All records, including support information, shall be maintained for at least five (5) years from the date of the monitoring sample, measurement, test, report, or application. Support information includes all maintenance, inspection, and repair records and copies of all reports required by this permit. These records shall be true, accurate, and maintained in a permanent form suitable for inspection and made available to the Department or its representative(s) upon request.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

2. Production

The permittee shall maintain records on the total tons of material processed by the Crushing Plant and gallons of fuel consumed by the DE for the purposes of annual emissions reporting.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

3. Water Spray Systems - Crusher

- a. A water pressure gauge and/or flow meter shall be installed, operated, and maintained to measure the pressure and/or flow rate of the water spray systems in psi and/or gallons per minute (gal/min).
- b. The water spray systems, to include the water pump, piping system, spray nozzles, and any gauges (i.e., water pressure, water flow meter, etc.) shall be inspected routinely at least once per month to ensure proper operation of the water spray systems. Inspections of the water spray systems shall be recorded in accordance with the Inspection, Maintenance, and Repair Log of Attachment II, Special Condition No. D.4.

- c. The permittee shall initiate corrective action within twenty-four (24) hours and complete corrective action as expediently as practical if the permittee finds that water is not flowing properly during an inspection of the water spray system.
- d. If equipment that routinely uses wet suppression water sprays ceases operation of the water sprays or is using a control mechanism to reduce fugitive emissions other than water sprays during the monthly inspection (e.g., water from recent rainfall), the logbook entry must specify the control mechanism being used instead of the water sprays.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90; 40 CFR §60.674)¹

4. Inspection, Maintenance, and Repair Log

An inspection, maintenance, and repair log shall be maintained for the equipment covered under this permit. Inspection and replacement of parts and repairs to the crusher, conveyors, water spray system, and DE shall be well documented. At a minimum, the following records shall be maintained:

- a. The date of the inspection/maintenance/repair work;
- b. A description of the part(s) inspected or repaired;
- c. A description of the findings and any maintenance or repair work performed; and
- d. The name and title of the personnel performing the inspection/work.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

5. Fuel Certification

Fuel purchase receipts showing the fuel type, sulfur content (percent by weight), cetane index or aromatic content (volume percent), date of delivery, and amount (gallons) of fuel delivered for the DE shall be maintained for purposes of the fuel limits specified in Attachment II, Special Condition No. C.4, and annual emissions reporting. Fuel sulfur content, and cetane index or aromatic content may be demonstrated by providing the supplier's fuel specification sheet for the type of fuel purchased and received.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-11, §11-60.1-90)

6. Performance Test

Performance tests shall be conducted on the Crushing Plant pursuant to Attachment II, Special Conditions, Section F. Test plans, summaries and results shall be maintained in accordance with the requirements of this section.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

7. Visible Emissions

Except in those months when performance tests are conducted for fugitive emissions pursuant to Attachment II, Special Conditions, Section F, the permittee shall conduct **monthly** (calendar month), VE observations for the Crushing Plant by a certified reader in accordance with 40 CFR Part 60, Appendix A, Method 9, or U.S. EPA approved equivalent methods, or alternative methods with prior written approval from the Department and U.S. EPA. For each month, two (2) consecutive six (6) minute observations shall be taken at fifteen (15) second intervals for each emission point subject to an opacity limit. Records shall be completed and maintained in accordance with the *Visible Emissions Form Requirements*. For the VE observations of fugitive emissions, the observer shall comply with the following additional requirements:

- a. The minimum distance between the observer and the emission source shall be 4.57 meters (fifteen (15) feet), but not greater than 402 meters (0.25 miles);
- b. The observer shall, when possible, select a position that minimizes interference from other VE sources. The required observer position relative to the sun (Method 9, Section 2.1) shall be followed; and
- c. The observer shall record the operating capacity (ton/hr) of the Crushing Plant at the time the observations were made.

The Department may allow observation of a portion of the total fugitive emission points subject to opacity limits, if it can be demonstrated that operations have been in compliance with the permit. At a minimum, at least three (3) fugitive emission points shall be observed each month. The selected points shall include a crusher and transfer point, or those points as specified by the Department. Allowance to observe a portion of the total required fugitive emission points shall be obtained in writing from the Department.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-11, §11-60.1-32, §11-60.1-90; SIP §11-60-24)²

8. Alternate Operating Scenario

The permittee shall contemporaneously with making a change from one operating scenario to another, record in a log at the permitted facility, the scenario under which it is operating.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

Section E. Notification and Reporting Requirements

1. Standard Conditions Reporting

Notification and reporting pertaining to the following events shall be done in accordance with Attachment I, Standard Condition Nos. 14, 16, 17, and 24, respectively:

- a. Anticipated date of initial start-up, actual date of construction commencement, and actual date of start-up for the crusher;
- b. Intent to shut down air pollution control equipment for necessary scheduled maintenance;
- c. Emissions of air pollutants in violation of HAR, Chapter 11-60.1 or this permit; and
- d. Permanent discontinuance of construction, modification, relocation, or operation of the facility covered by this permit.

(Auth.: HAR §11-60.1-8, §11-60.1-15, §11-60.1-16, §11-60.1-90; SIP §11-60-10, §11-60-16)²

2. Deviations

The permittee shall report in writing **within five (5) working days** any deviations from permit requirements, including those attributable to upset conditions, the probable cause of such deviations and any corrective actions or preventive measures taken. Corrective actions may include a requirement for additional source testing, more frequent monitoring, or could trigger implementation of a corrective action plan.

(Auth.: HAR §11-60.1-3, §11-60.1-15, §11-60.1-16, §11-60.1-90)

3. Annual Emissions Reports

As required by Attachment IV, Annual Emissions Reporting Requirements, and in conjunction with the requirements of Attachment III, Annual Fee Requirements, the permittee shall report **annually** the total tons per year emitted of each regulated air pollutant. The report is due **within sixty (60) days** following the end of each calendar year. The following enclosed form shall be used for reporting:

Annual Emissions Report Form: Crushing Plant and Diesel Engine

Upon the permittee's written request, the deadline for annual emissions reporting may be extended, if the Department determines that reasonable justification exists for the extension.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-11, §11-60.1-90)

4. Monitoring Reports

The permittee shall submit **semi-annually** the following reports to the Department. The reports shall be submitted **within sixty (60) days** after the end of each semi-annual calendar period (January 1 - June 30 and July 1 - December 31), and shall be signed and dated by a responsible official. The following enclosed form shall be used for reporting:

Monitoring Report Form: Fuel Certification **Monitoring Report Form: Opacity Exceedances**

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-11, §11-60.1-90)

5. Performance Testing

- a. At least **thirty (30) days** prior to conducting a source performance test pursuant to Attachment II, Special Conditions, Section F, the permittee shall notify and submit a written performance test plan to the Department in accordance with Attachment II, Special Condition No. F.4.
- b. Within **sixty (60) days** after completion of a source performance test, the permittee shall submit a test report in accordance with Attachment II, Special Condition No. F.6.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90; 40 CFR §60.8)¹

6. Compliance Certification

During the permit term, the permittee shall submit at least **annually** to the Department and U.S. EPA, Region 9, the attached **Compliance Certification Form** pursuant to HAR §11-60.1-86. The permittee shall indicate whether or not compliance is being met with each term or condition of this permit. The compliance certification shall include, at a minimum, the following information:

- a. The identification of each term or condition of the permit that is the basis of the certification;
- b. The compliance status;
- c. Whether compliance was continuous or intermittent;
- d. The methods used for determining the compliance status of the source currently and over the reporting period;
- e. Any additional information indicating the source's compliance status with any applicable enhanced monitoring and compliance certification including the requirements of Section 114(a)(3) of the Clean Air Act or any applicable monitoring and analysis provisions of Section 504(b) of the Clean Air Act;
- f. Brief description of any deviations including identifying as possible exceptions to compliance any periods during which compliance is required and in which the excursion or exceedances as defined in 40 CFR Part 64 occurred; and
- g. Any additional information as required by the Department including information to determine compliance.

The compliance certification shall be submitted **within sixty (60) days** after the end of each calendar year and shall be signed and dated by a responsible official.

Upon written request of the permittee, the deadline for submitting the compliance certification may be extended, if the Department determines that reasonable justification exists for the extension.

(Auth.: HAR §11-60.1-4, §11-60.1-86, §11-60.1-90)

7. Alternate Operating Scenario

- a. The permittee shall submit a written request and receive prior written approval from the Department before exchanging the DE with a temporary replacement unit. The written request shall identify, at a minimum, the reasons for the replacement of the DE from the site of operation and the estimated time/dates for the temporary replacement, type and size of the temporary unit, emissions data, and stack parameters.
- b. Prior to the removal and return of the DE, the permittee shall submit to the Department written documentation on the removal and return dates and on the make, size, model, and serial numbers, for both the temporary replacement unit and the installed unit.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-90)

Section F. Testing Requirements

1. Initial and Annual Performance Testing

- a. Within **sixty (60) days** after achieving the maximum production rate at which the crusher will be operated, but not later than **180 days** after initial start-up, and **annually** thereafter, the permittee shall conduct or cause to be conducted performance tests on the crusher to determine the opacity of emissions. Tests shall be conducted for each point subject to an opacity limit specified in Attachment II, Special Condition No. C.1.
- b. The tests shall be conducted at the maximum expected operating capacity of the crusher.
- c. The Department may require testing at other points in the facility or more frequent testing if an inspection indicates poor or insufficient controls.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90, §11-60.1-161; 40 CFR §60.8, §60.675; SIP §11-60-15)^{1,2}

2. Performance Test Methods

- a. The performance tests for the determination of opacity shall be conducted by a certified reader using Method 9 of 40 CFR Part 60, Appendix A-4, and the procedures in 40 CFR §60.11, with the following additions for the fugitive emissions observations:
 - i. The minimum distance between the observer and the emission source shall be 4.57 meters (fifteen (15) feet);
 - ii. The observer shall, when possible, select a position that minimizes interference from other fugitive emission sources. The required observer position relative to the sun (Method 9, Section 2.1) shall be followed;
 - iii. The observer shall record the operating capacity (tons/hr) of the Crushing Plant at the time the observations were made; and
 - iv. The observer shall record the flow rate for the water spray system in gallons per minute servicing the plant.

- b. When determining compliance with the fugitive emissions standard of Attachment II, Special Condition No. C.1, the duration of Method 9 observations must be thirty (30) minutes (five (5) six-minute (6-minute) averages). Compliance with the applicable fugitive emission limits specified in Attachment II, Special Condition No. C.1, must be based on the average of the five (5) six-minute (6-minute) averages.
- c. When determining compliance with the fugitive emissions standard of Attachment II, Special Condition No. C.1, if emissions from two (2) or more facilities continuously interfere so that the opacity of fugitive emissions from an individual affected facility cannot be read, either of the following procedures may be used:
 - i. Use for the combined emission stream, the highest fugitive opacity standard applicable to any of the individual affected facilities contributing to the emissions stream; or
 - ii. Separate the emissions so that the opacity of emissions from each affected facility can be read.
- d. When determining compliance with the fugitive emissions standard of Attachment II, Special Condition No. C.1, a single VE observer may conduct VE observations for up to three (3) fugitive, stack, or vent emission points within a fifteen-second (15-second) interval if the following conditions are met:
 - i. No more than three (3) emission points may be read concurrently;
 - ii. All three (3) emission points must be within a seventy (70) degree viewing sector or angle in front of the observer such that the proper sun position can be maintained for all three (3) points; and
 - iii. If an opacity reading for any one (1) of the three (3) emission points equals or exceeds the applicable standard, then the observer must stop taking readings for the other two (2) points and continue reading just that single point.
- e. If, after **thirty (30) days** notice for an initially scheduled performance test, there is a delay, for example, due to operational problems, in conducting any rescheduled performance test required by Attachment II, Special Conditions, Section F, the permittee shall submit a notice to the Department at least **seven (7) days** prior to any rescheduled performance test.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90; 40 CFR §60.8, §60.675)¹

3. Performance Test Expense and Monitoring

The performance tests shall be made at the expense of the permittee and may be monitored by the Department.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

4. Performance Test Plan

At least **thirty (30) days** prior to conducting a performance test, the permittee shall submit a written performance test plan to the Department and U.S. EPA, Region 9, that includes date(s) of the test, test duration, test locations, test methods, source operation, locations of VE readings, and other parameters that may affect the test results. Such a plan shall conform to U.S. EPA guidelines including quality assurance procedures. A test plan or quality assurance plan that does not have the approval of the Department may be grounds to invalidate any test and require a retest.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90; 40 CFR §60.8; SIP §11-60-15)^{1,2}

5. Deviations

Any deviations from these conditions, test methods, or procedures may be cause for rejection of the test results unless such deviations are approved by the Department before the tests.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

6. Performance Test Report

Within **sixty (60) days** after completion of a performance test, the permittee shall submit to the Department and U.S. EPA, Region 9, the test report which shall include the operating conditions of the equipment at the time of the test (e.g., operating rate in tons/hr, water meter flow rate in gal/min, etc.), locations where the VE were read, VE readings, location of water sprays, summarized test results, comparative results with the permit emission limits, other pertinent support calculations, and field/laboratory data. The results shall be recorded and reported in accordance with 40 CFR Part 60, Appendix A, and §60.8.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90; 40 CFR §60.8, §60.675; SIP §11-60-15)^{1,2}

7. Performance Test Waiver

Upon written request and justification, the Department may waive the requirement for, or a portion of, a specific performance test. The waiver request is to be submitted prior to the required test and must include documentation justifying such action. Documentation should include, but is not limited to, the results of the prior performance test indicating compliance by a wide margin, documentation of continuing compliance, and further that operations of the source have not changed since the previous source test.

(Auth.: HAR §11-60.1-3, §11-60.1-90)

Section G. Change of Location Requirements

1. For all location changes, the permittee shall submit the enclosed **Change of Location Request for a Temporary Source** form to the Department for approval **at least thirty (30) days prior to the change in location**, or such lesser time as designated and approved by the Department.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

2. With each change of location request, the permittee shall submit to the Department:
 - a. A map of the proposed new temporary location showing the property boundary, fence lines, location of the equipment on the property, and the location of any other air pollution sources owned and operated by the permittee at the new location, and the location of all structures within 100 meters (330 feet) of the equipment; and
 - b. An area map showing the proposed new temporary location.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

3. The applicable filing fee shall be submitted to the Department with each change in location request and made payable to the **Clean Air Special Fund-COV**.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

4. The permittee shall submit any additional information as requested by the Department.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

5. Prior to any relocation, the Department shall approve, conditionally approve, or deny in writing each location change. If the Department denies a location change, the applicant may appeal the decision pursuant to HRS, Chapter 91.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

6. The change of location approval, or a copy thereof, shall be maintained near the source and shall be made available for inspection upon request by the Department.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

7. At each of the authorized locations, the permittee shall operate in accordance with this temporary CSP and all applicable requirements.

(Auth.: HAR §11-60.1-3, §11-60.1-91)

Section H. Agency Notification

Any document (including reports) required to be submitted by this temporary CSP shall be done in accordance with Attachment I, Standard Condition No. 28.

(Auth.: HAR §11-60.1-4, §11-60.1-90)

¹The citations to the Code of Federal Regulations (CFR) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the CFR. Due to the integration of the preconstruction and operating permit requirements, permit conditions may incorporate more stringent requirements than those set forth in the CFR.

²The citations to the State Implementation Plan (SIP) identified under a particular condition, indicate that the permit condition complies with the specified provision(s) of the SIP.

**ATTACHMENT II – INSIG
SPECIAL CONDITIONS – INSIGNIFICANT ACTIVITIES
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

In addition to the standard conditions of the temporary CSP, the following special conditions shall apply to the permitted facility:

Section A. Equipment Description

This attachment encompasses insignificant activities listed in HAR §11-60.1-82(f) and (g) for which provisions of this permit and HAR, Subchapter 2, General Prohibitions apply.

(Auth.: HAR §11-60.1-3)

Section B. Operational Limitations

1. The permittee shall take measures to operate applicable insignificant activities in accordance with the provisions of HAR, Subchapter 2 for VE, fugitive dust, incineration, process industries, sulfur oxides from fuel combustion, storage of volatile organic compounds, volatile organic compound water separation, pump and compressor requirements, and waste gas disposal.

(Auth.: HAR §11-60.1-3, §11-60.1-82, §11-60.1-90)

2. The Department may at any time require the permittee to further abate emissions if an inspection indicates poor or insufficient controls.

(Auth.: HAR §11-60.1-3, §11-60.1-5, §11-60.1-82, §11-60.1-90)

Section C. Monitoring and Recordkeeping Requirements

1. The Department reserves the right to require monitoring, recordkeeping, or testing of any insignificant activity to determine compliance with the applicable requirements.

(Auth.: HAR §11-60.1-3, §11-60.1-90)

2. All records shall be maintained for at least five (5) years from the date of any required monitoring, recordkeeping, testing, or reporting. These records shall be true, accurate, and maintained in a permanent form suitable for inspection and made available to the Department or its authorized representative upon request.

(Auth.: HAR §11-60.1-3, §11-60.1-11, §11-60.1-90)

Section D. Notification and Reporting

Compliance Certification

During the permit term, the permittee shall submit at least **annually** to the Department and U.S. EPA, Region 9, the attached **Compliance Certification Form** pursuant to HAR §11-60.1-86. The permittee shall indicate whether or not compliance is being met with each term or condition of this permit. The compliance certification shall include, at a minimum, the following information:

1. The identification of each term or condition of the permit that is the basis of the certification;
2. The compliance status;
3. Whether compliance was continuous or intermittent;
4. The methods used for determining the compliance status of the source currently and over the reporting period;
5. Any additional information indicating the source's compliance status with any applicable enhanced monitoring and compliance certification including the requirements of Section 114(a)(3) of the Clean Air Act or any applicable monitoring and analysis provisions of Section 504(b) of the Clean Air Act;
6. Brief description of any deviations including identifying as possible exceptions to compliance any periods during which compliance is required and in which the excursion or exceedances as defined in 40 CFR Part 64 occurred; and
7. Any additional information as required by the Department including information to determine compliance.

The compliance certification shall be submitted **within sixty (60) days** after the end of each calendar year and shall be signed and dated by a responsible official.

Upon written request of the permittee, the deadline for submitting the compliance certification may be extended, if the Department determines that reasonable justification exists for the extension.

In lieu of addressing each emission unit as specified in the **Compliance Certification Form**, the permittee may address insignificant activities as a single unit provided compliance is met with all applicable requirements. If compliance is not totally attained, the permittee shall identify the specific insignificant activity and provide the details associated with the noncompliance.

(Auth.: HAR §11-60.1-4, §11-60.1-86, §11-60.1-90)

Section E. Agency Notification

Any document (including reports) required to be submitted by this temporary CSP shall be done in accordance with Attachment I, Standard Condition No. 28.

(Auth.: HAR §11-60.1-4, §11-60.1-90)

**ATTACHMENT III: ANNUAL FEE REQUIREMENTS
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

The following requirements for the submittal of annual fees are established pursuant to HAR, Title 11, Chapter 60.1, Air Pollution Control. Should HAR, Chapter 60.1 be revised such that the following requirements are in conflict with the provisions of HAR, Chapter 60.1, the permittee shall comply with the provisions of HAR, Chapter 60.1:

1. Annual fees shall be paid in full:
 - a. Within **120 days** after the end of each calendar year; and
 - b. Within **thirty (30) days** after the permanent discontinuance of the covered source.
2. The annual fees shall be determined and submitted in accordance with HAR, Chapter 11-60.1, Subchapter 6.
3. The annual emissions data for which the annual fees are based shall accompany the submittal of any annual fees and be submitted on forms furnished by the Department.
4. The annual fees and the emission data shall be mailed to:

**State of Hawaii
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782**

**ATTACHMENT IV: ANNUAL EMISSIONS REPORTING REQUIREMENTS
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

In accordance with the HAR, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the nature and amounts of emissions.

1. Complete the attached form(s):

Annual Emissions Report Form: Crushing Plant and Diesel Engine

2. The reporting period shall be from January 1 to December 31 of each year. All reports shall be submitted to the Department within **sixty (60) days** after the end of each calendar year and shall be mailed to the following address:

**State of Hawaii
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782**

3. The permittee shall retain the information submitted, including all emission calculations. These records shall be in a permanent form suitable for inspection, retained for a minimum of five (5) years, and made available to the Department upon request.
4. Any information submitted to the Department without a request for confidentiality shall be considered public record.
5. In accordance with HAR, Section 11-60.1-14, the permittee may request confidential treatment of specific information, including information concerning confidential processes or methods of manufacture, by submitting a written request to the Director and clearly identifying the specific information that is to be accorded confidential treatment.

COMPLIANCE CERTIFICATION FORM
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(PAGE 1 OF ____)

Issuance Date: DATE

Expiration Date: DATE

In accordance with the Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following certification at least annually, or more frequently as requested by the Department of Health.

(Make Copies for Future Use)

For Period: _____ Date: _____

Company/Facility Name: _____

Responsible Official (Print): _____

Title: _____

Responsible Official (Signature): _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by Department of Health as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the HAR, Title 11, Chapter 60.1, Air Pollution Control, and any permit issued thereof.

COMPLIANCE CERTIFICATION FORM
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(CONTINUED, PAGE 2 OF ____)

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use)

The purpose of this form is to evaluate whether or not the facility was in compliance with the permit terms and conditions during the covered period. If there were any deviations to the permit terms and conditions during the covered period, the deviation(s) shall be certified as *intermittent compliance* for the particular permit term(s) or condition(s). Deviations include failure to monitor, record, report, or collect the minimum data required by the permit to show compliance. In the absence of any deviation, the particular permit term(s) or condition(s) may be certified as *continuous compliance*.

Instructions:

Please certify Sections A, B, and C below for continuous or intermittent compliance. Sections A and B are to be certified as a group of permit conditions. Section C shall be certified individually for each operational and emissions limit condition as listed in the Special Conditions section of the permit (list all applicable equipment for each condition). Any deviations shall also be listed individually and described in Section D. The facility may substitute its own generated form in verbatim for Sections C and D.

A. Attachment I, Standard Conditions

<u>Permit term/condition</u>	<u>Equipment</u>	<u>Compliance</u>
All standard conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent

B. Special Conditions - Monitoring, Recordkeeping, Reporting, and Testing

<u>Permit term/condition</u>	<u>Equipment</u>	<u>Compliance</u>
All monitoring conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent
All recordkeeping conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent
All reporting conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent
All testing conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent
All INSIG conditions	All Equipment listed in the permit	☐ Continuous ☐ Intermittent

COMPLIANCE CERTIFICATION FORM
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(CONTINUED, PAGE ____ OF ____)

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use)

C. Special Conditions - Operational and Emissions Limitations

Each permit term/condition shall be identified in chronological order using attachment and section numbers (e.g., Attachment II, Special Condition No. B.1.a, etc.). Each piece of equipment shall be identified using the description stated in Section A of the Special Conditions (e.g., unit no., model no., serial no., etc.). Check all methods (as required by permit) used to determine the compliance status of the respective permit term/condition.

Permit Term/Condition	Equipment	Method	Compliance
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent
		☐ monitoring ☐ recordkeeping ☐ reporting ☐ testing ☐ none of the	☐ Continuous ☐ Intermittent

COMPLIANCE CERTIFICATION FORM
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(CONTINUED, PAGE ____ OF ____)

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use)

D. Deviations

Permit Term / Condition	Equipment / Brief Summary of Deviation	Deviation Period time (am/pm) & date (mo/day/yr)	Date of Written Deviation Report to DOH (mo/day/yr)
		Beginning: Ending:	
		Beginning: Ending:	
		Beginning: Ending:	
		Beginning: Ending:	
		Beginning: Ending:	
		Beginning: Ending:	
		Beginning: Ending:	

*Identify as possible exceptions to compliance any periods during which compliance is required and in which an excursion or exceedance as defined under 40 CFR Part 64 occurred.

**ANNUAL EMISSIONS REPORT FORM
CRUSHING PLANT AND DIESEL ENGINE
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the nature and amounts of emissions:

(Make Copies for Future Use)

For Reporting Period: _____ Date: _____

Company Name: _____

Facility Name: _____

Equipment Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate, and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (Print): _____

Title: _____ Phone Number: _____

Responsible Official (Signature): _____

1. Report the air pollution control measures used for the facility:

Type of Operation	Air Pollution Control Measures in Use	Control Efficiency (% Reduction)
Truck Loading		
Truck Unloading		
Crushing		
Conveyor Transfer		
Stockpiles		
Note: Control measures include water sprays, housing and duct work to baghouses. <i>Use the following Control Efficiencies, unless documentation is available to show otherwise:</i> <i>Baghouses: 99%</i> <i>Water sprays, or Shroud: 70%</i> <i>Subsequent transfer points of water sprayed material: 70-(5*n)%</i> <i>Efficiency factors may be reduced by the Department of Health, if there are any indications that a source's air pollution control device is not operating at the specified efficiency.</i>		

2. Report the total tons of material processed by the crusher for the calendar year:

Equipment	Annual Material Processed (tons/yr)
300 TPH Eagle crusher (Serial No. 32094)	

3. Report the maximum sulfur content and annual fuel consumption of ultra-low sulfur diesel fuel fired in the diesel engine (DE) for the calendar year:

Equipment	Maximum Sulfur Content (% by Weight)	Annual Fuel Consumption (gallons/year)
456 Caterpillar DE (Serial No. NGH06326)		

**MONITORING REPORT FORM
FUEL CERTIFICATION
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

In accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, the permittee shall report to the Department of Health the following information **semi-annually**:

(Make Copies for Future Use)

For Reporting Period: _____ Date: _____

Company Name: _____

Facility Name: _____

Equipment Location: _____

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate, and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Responsible Official (Print): _____

Title: _____ Phone Number: _____

Responsible Official (Signature): _____

1. Report the type of fuel, maximum sulfur content, and either minimum cetane index or maximum aromatic content in volume percent fired in the diesel engine (DE) for the reporting period; and provide the supplier's fuel specifications sheet for the type of fuel in the below table.

Equipment Description	Type of Fuel Fired	Maximum Sulfur Content (% by Weight)	Minimum Cetane Index	Maximum Aromatic Content (Volume %)
456 hp Caterpillar DE, (Serial No. NGH06326)				

For Reporting Period: _____ Date: _____

Company Name: _____

Facility Name: _____

Equipment Location: _____

Responsible Official (Print):_____

Responsible Official (Signature):_____

Report the following on the lines provided below: all date(s) and six (6) minute average opacity reading(s) which the opacity limit was exceeded during the monthly observations; or if there were no exceedances during the monthly observations, then write "no exceedances" in the comment column.

[illegible]

**CHANGE OF LOCATION REQUEST
FOR A TEMPORARY SOURCE
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(PAGE 1 OF 3)**

Issuance Date: DATE

Expiration Date: DATE

In accordance with the Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1, Air Pollution Control, the permittee shall provide the following information to the Department of Health:

(Make Copies for Future Use)

1. For all location changes, the permittee shall complete and submit this change of location request form to the Department of Health for approval **at least thirty (30) days prior to the change in location**, or such lesser time as designated and approved by the Department of Health.
2. With each change of location request, the permittee shall submit to the Department of Health:
 - a. A map of the proposed new temporary location showing the:
 - i. Property boundary;
 - ii. Fence lines;
 - iii. Location of the equipment on the property;
 - iv. Location of any other air pollution sources owned and operated by the permittee at the new location; and
 - v. Location of all structures within 100 meters (330 feet) of the equipment.
 - b. An area map showing the proposed new temporary location.
3. The permittee shall submit a filing fee with each change in location request. The filing fee shall be made payable to the **Clean Air Special Fund-COV** and is as follows:

Covered Sources
☒ \$100.00 for Non-Air Toxic
☐ \$300.00 for Air Toxic
4. The permittee shall submit any additional information as requested by the Department of Health, which may include an ambient air quality impact analysis of the equipment at the new location.
5. This **Change of Location Request for a Temporary Source** form shall be mailed to the following address:

**State of Hawaii
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782**

-
1. Prior to any relocation, the Department of Health shall approve, conditionally approve, or deny in writing each location change. If the Department of Health denies a location change, the applicant may appeal the decision pursuant to Hawaii Revised Statutes (HRS), Chapter 91.
 2. The change of location approval, or a copy thereof, shall be maintained near the source and shall be made available for inspection upon request by the Department of Health.
 3. At each new authorized location, the permittee shall operate in accordance with the current temporary covered source permit (CSP) and all applicable requirements.

**CHANGE OF LOCATION REQUEST
FOR A TEMPORARY SOURCE
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(CONTINUED, PAGE 2 OF 3)**

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use)

1. Company Name: _____
2. Mailing Address: _____
 City: _____ State: _____ Zip Code: _____
 Phone Number: _____
3. Name of Owner/Owner's Agent: _____
 Title: _____ Phone Number: _____
4. Equipment Description (identify each equipment to be relocated): _____

5. Current Location of Equipment: _____
6. **New Location Information**
 - a. Street Address: _____
 - b. City: _____ Zip Code: _____ Island: _____
 - c. For sites with no street address, provide:
 Description of location: _____
 Or, Tax map key: _____
 Or, UTM Coordinates: Zone: ____ Easting: _____ m E, Northing: _____ m N
 Horizontal Datum: _____
 - d. Plant Manager/Contact: _____ Phone Number: _____
 - e. Proposed start date at new location: _____
 - f. Estimate project duration at new location: _____
 - g. Identify any other air pollution sources owned and operated by the permittee at the new location: _____

 - h. Brief description of the work to be performed: _____

**CHANGE OF LOCATION REQUEST
FOR A TEMPORARY SOURCE
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT
(CONTINUED, PAGE 3 OF 3)**

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use)

- i. List structures within **100 meters (330 feet)** of the equipment and which have heights greater than forty percent (40%) of the equipment stack height. In the following table, provide the structure height, length, width, and distance to the equipment stack at the new site. If there are no applicable structures, specify "none."

Structure	Distance from Stack (ft)	Height (ft)	Length (ft)	Width (ft)

- j. Provide estimated distances to the nearest residence and/or occupied establishments (e.g. schools, businesses, etc.):

Distance ¹	Identify if residence, school, business, etc.

¹Include units, e.g. feet, miles

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record. I further state that no modifications will be made to the equipment and operational methods will remain similar as permitted under the current temporary CSP at this new location.

Responsible Official (Print): _____ Date: _____

Title: _____

Responsible Official (Signature): _____

**VISIBLE EMISSIONS FORM REQUIREMENTS
STATE OF HAWAII
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT**

Issuance Date: DATE

Expiration Date: DATE

The **Visible Emissions (VE) Form** shall be completed **monthly** (*each calendar month*) for each equipment subject to opacity limits by a certified reader in accordance with 40 CFR Part 60, Appendix A, Method 9, or U.S. EPA approved equivalent methods, or alternative methods with prior written approval from the Department of Health and U.S. EPA. The VE Form shall be completed as follows:

1. VE observations shall take place during the day only. The opacity shall be noted in five percent (5%) increments (e.g., 25%).
2. Orient the sun within a 140 degree sector to your back. Provide a source layout sketch on the VE Form using the symbols as shown.
3. For VE observations of stacks, stand at least three (3) stack heights but not more than a quarter mile from the stack.
4. For VE observations of fugitive emissions from crushing and screening plants, stand at least 4.57 meters (fifteen (15) feet) from the VE source, but not more than a quarter mile from the VE source.
5. Two (2) consecutive six (6) minute observations shall be taken at fifteen (15) second intervals for each stack or emission point.
6. The six (6) minute average opacity reading shall be calculated for each observation.
7. If possible, the observations shall be performed as follows:
 - a. Read from where the line of sight is at right angles to the wind direction.
 - b. The line of sight shall not include more than one (1) plume at a time.
 - c. Read at the point in the plume with the greatest opacity (without condensed water vapor), ideally while the plume is no wider than the stack diameter.
 - d. Read the plume at fifteen (15) second intervals only. Do not read continuously.
 - e. The equipment shall be operating at the maximum permitted capacity.
8. If the equipment was shut-down for that period, briefly explain the reason for shut-down in the comment column.

The permittee shall retain the completed VE Forms for recordkeeping. These records shall be in a permanent form suitable for inspection, retained for a minimum of five (5) years, and made available to the Department of Health, or their representative upon request.

Any required initial and annual performance test performed in accordance with Method 9 by a certified reader shall satisfy the respective equipment's VE monitoring requirements for the month the performance test is performed.

VISIBLE EMISSIONS FORM
TEMPORARY COVERED SOURCE PERMIT NO. 0907-01-CT

Issuance Date: DATE

Expiration Date: DATE

(Make Copies for Future Use for Each Stack or Emission Point)

Company Name: _____

For stacks, describe equipment and fuel: _____

For fugitive emissions from crushers and screens, describe:

Fugitive emission point: _____

Plant Production (tons/hr): _____

(During observation)

Stack **X**
 Sun 
 Wind 

Draw North Arrow



Site Conditions:

Emission point or stack height above ground (ft): _____

Emission point or stack distance from observer (ft): _____

Emission color (black or white): _____

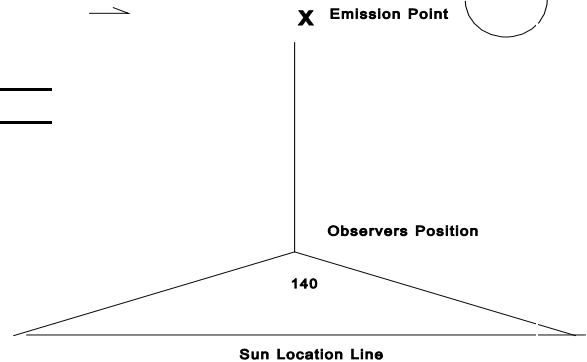
Sky conditions (% cloud cover): _____

Wind speed (mph): _____

Temperature (°F): _____

Observer Name: _____

Certified? (Yes/No): _____



Observation Date and Start Time: _____

MINUTES	Seconds				COMMENTS
	0	15	30	45	
1					
2					
3					
4					
5					
6					
Six (6) Minute Average Opacity Reading (%):					

Observation Date and Start Time: _____

MINUTES	Seconds				COMMENTS
	0	15	30	45	
1					
2					
3					
4					
5					
6					
Six (6) Minute Average Opacity Reading (%):					

Draft Review Summary

**PERMIT APPLICATION REVIEW
TEMPORARY COVERED SOURCE PERMIT (CSP) NO. 0907-01-CT
Application No. 0907-01 for Initial Permit**

Company: Pacific Concrete Cutting & Coring, Inc.

Mailing Address: P.O. Box 662261
Lihue, Hawaii 96766

Facility: 300 TPH Crushing Plant with 456 HP Diesel Engine

Location: 1. Ehiku Street, Lihue, Island of Kauai
Baseyard Location 1 UTM: 4Q; 461,375 m E, 2,431,075 m N (NAD-83)
Baseyard Location 2 UTM: 4Q; 461,406 m E, 2,431,095 m N (NAD-83)
2. Various Temporary Sites, State of Hawaii

SIC Code: 1442 Construction Sand and Gravel

Responsible Official: Mr. Eli Brainerd
President

Contact Official: Ms. Julie Simonton
Vice President
(808) 245-7171

PROPOSED PROJECT

Pacific Concrete Cutting & Coring, Inc. (Permittee) submitted an initial permit application on April 3, 2024. An ambient air quality impact assessment was submitted on September 27, 2024, and a final version on November 8, 2024. The proposed equipment is a portable 300 tons per hour (TPH) Eagle impact crusher equipped with a 456 horsepower (hp) diesel engine (DE). The Permittee is not proposing any limitation on the equipment operating hours.

The DE equipped on the portable crusher is considered a stationary source of emissions since the DE may operate at any location for more than twelve (12) consecutive months. The Permittee proposed two (2) feasible stationary operating locations on the Permittee's base yard that were assessed in the ambient air quality analysis.

The Permittee will be processing rocks and/or unpainted concrete suitable for crushing and recycling. Materials will be loaded onto the impact crusher by front-end loader or conveyor belt. Water sprays will be utilized to control fugitive emissions from the impact crusher, conveyors, stone processing area, storage piles, and unpaved roads as needed.

As an overview, the Permittee currently has a total of five (5) issued and proposed temporary CSPs at the subject location, which includes 0659-01-CT (permitted), 0673-01-CT (permitted), 0872-01-CT (permitted), 0907-01-CT (proposed), and 0925-01-CT (proposed). Although the Permittee proposed to operate the equipment at various temporary locations in the State of Hawaii, the initial location at the base yard on Ehiku Street has been assessed to ensure

emissions are below major source levels. Based on the potential emissions in the table below, the Permittee's combined operation of the permitted/proposed crushers and DE at this location has the potential to emit less than 100 tons per year (TPY) of any air pollutant subject to regulation and less than 10 TPY for a single hazardous air pollutant (HAP). Therefore, this is not a major source.

Temporary CSP No.	Equipment	Emissions (TPY) ^{1,2}							
		CO	NO _x	SO ₂	VOC	HAPs	PM	PM ₁₀	PM _{2.5}
0659-01-CT	507 TPH Komatsu jaw crusher	-	-	-	-	-	9.30	3.51	0.52
0673-01-CT	250 TPH Hartl impact crusher	-	-	-	-	-	1.31	0.591	0.110
	165 TPH Rubble Master impact crusher	-	-	-	-	-	0.87	0.390	0.072
0872-01-CT	353 TPH Powerscreen Impact crusher	-	-	-	-	-	1.86	0.835	0.155
0907-01-CT	300 TPH Eagle impact crusher	-	-	-	-	-	1.58	0.710	0.131
	456 HP Caterpillar DE	14.4	1.64	0.02	4.6	0.09	0.08	0.079	0.074
0925-01-CT	308 TPH Powerscreen jaw crusher	-	-	-	-	-	1.62	0.728	0.135
Total Potential Location Emissions		14.4	1.64	0.02	4.6	0.09	16.6	6.8	1.2

¹Ton per year (TPY)

²Includes only point source emissions and emissions considered reasonably capturable.

EQUIPMENT DESCRIPTION

1. 300 TPH Eagle impact crusher, UltraMax 1200-CV Series, Model UM-25, Model No. 33895000, Serial No. 32094, with water spray system, Manufactured in 2023 (Portable), powered by a 456 hp Caterpillar DE, Model C9.3B, Serial No. NGH06326, Manufactured in 2023 (Tier 4 Final);
2. Various conveyors; and
3. Water sprays.

AIR POLLUTION CONTROLS

The crusher is equipped with a built-in water spray system. Water truck will also be used as needed to minimize fugitive dust from crushing area, material transfer points, storage piles, and unpaved roads.

APPLICABLE AND NON-APPLICABLE REQUIREMENTS

Hawaii Administrative Rules (HAR)

Title 11 Chapter 59, Ambient Air Quality Standards

Title 11 Chapter 60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31, Applicability

11-60.1-32, Visible Emissions

11-60.1-33, Fugitive Dust

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, and Agricultural Burning
 11-60.1-111, Definitions
 11-60.1-112, General Fee Provisions for Covered sources
 11-60.1-113, Application Fees for Covered sources
 11-60.1-114, Annual Fees for Covered sources
 11-60.1-115, Basis of Annual Fees for Covered Sources
 Subchapter 8, Standards of Performance for Stationary Sources
 11-60.1-161, New Source Performance Standards
 Subchapter 10, Field Citations

Prevention of Significant Deterioration (PSD), 40 Code of Federal Regulations (CFR) Part 52, §52.21

PSD does not apply. The facility is not a listed source in the definition of “major stationary source” of 40 CFR §52.21 and HAR §11-60.1-131, and potential emissions from the facility are less than 250 TPY, which is the trigger level for a non-listed source.

Standard of Performance for New Stationary Sources (NSPS), 40 (CFR) Part 60

Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants is applicable to the portable Eagle impact crusher because the crusher has a maximum capacity greater than 150 TPH and was manufactured after August 31, 1983. The 300 TPH Eagle portable impact crusher was manufactured in 2023.

Subpart IIII – Standards of Performance for Stationary Compression Ignition (CI) Internal Combustion Engines (ICE) is applicable to the DE equipped on the portable crusher because the DE is considered a stationary source and was manufactured after April 1, 2006. Subpart IIII applies to stationary CI ICE manufactured after April 1, 2006, that are not fire pump engines.

National Emission Standards for Hazardous Air Pollutants (NESHAPs), 40 CFR Part 61

This source is not regulated by 40 CFR Part 61 NESHAPs.

NESHAPs for Source Categories, 40 CFR Part 63

Subpart ZZZZ – National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE) is applicable to the DE equipped on the portable crusher because the DE is considered a stationary source and was manufactured after April 1, 2006. A stationary RICE located at an area source of HAP emissions is a new stationary RICE if construction was commenced on or after June 12, 2006. A new stationary RICE located at an area source must meet the requirements of Subpart ZZZZ by meeting the requirements of 40 CFR Part 60, Subpart IIII, for stationary CI ICE.

Compliance Assurance Monitoring (CAM), 40 CFR Part 64

This source is not subject to CAM because the facility is not a major source. The purpose of CAM is to provide a reasonable assurance that compliance is being achieved with large emissions units that rely on air pollution control device equipment to meet an emissions limit or standard. Pursuant to 40 CFR Part 64, §64.2(a), for CAM to be applicable, the emissions unit must:

- (1) Be located at a major source;
- (2) Be subject to an emissions limit or standard;
- (3) Use a control device to achieve compliance;

- (4) Have potential pre-control emissions that are equal to or greater than 100% of the major source level; and
- (5) Not otherwise be exempt from CAM.

CAM is not applicable because potential emissions are below major source thresholds.

Air Emissions Reporting Requirements (AERR), 40 CFR Part 51, Subpart A

Except for the crusher and DE, emissions from this facility are fugitive in nature, not capturable, and the operations do not belong to one of the categories of sources listed in the definition of “major source” or “major stationary source” where fugitive emissions shall be considered in the determination.

AERR is not applicable because capturable fugitive emissions from the crusher and point source emissions from the DE equipped on the crusher are below AERR thresholds for Type A and Type B sources as specified in 40 CFR Part 51, Subpart A, Appendix A, Table 1. See Project Emissions Summary in the Project Emissions section below.

Department of Health (DOH), Clean Air Branch (CAB), In-house Annual Emissions Reporting

The CAB requires annual emissions reporting from those noncovered source facilities that have facility wide emissions exceeding in-house reporting levels and for all covered sources. Annual emissions reporting is required because this facility is a covered source.

Best Available Control Technology (BACT)

BACT means an emissions limitation, including a visible emission, based on the maximum degree of reduction for each regulated air pollutant which would be emitted from any proposed stationary source or modification which, on a case-by-case basis, the Director, taking into account energy, environmental, and economic impacts and other costs, determines is achievable.

A BACT analysis is required for new or modified sources if the net increase in pollutant emissions exceeds significant levels as defined in HAR §11-60.1-1. The proposed facility is not subject to a BACT analysis because capturable fugitive emissions and point-source emissions are below significant levels. Although not subject to BACT, water sprays will be used to control fugitive emissions, and the DE is certified as Tier 4 Final.

EXEMPT EQUIPMENT AND INSIGNIFICANT ACTIVITY

None proposed.

ALTERNATE OPERATING SCENARIO

The Permittee requests an alternate operating scenario for the 456 hp Caterpillar DE equipped on the portable crusher if repair reasonably warrants the removal of the DE from the crusher (i.e., equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation). The alternate operating scenario will be added to the permit.

PROJECT EMISSIONS

Emissions are conservatively based on the crushing plant operating at 8,760 hours per year (hrs/yr). The manufacturer's maximum processing capacity of 300 TPH for the portable Eagle crusher is used to calculate potential project emissions. The crusher is equipped with a water spray system. Additional water sprays will be used as needed to minimize fugitive dust from material transfer points, storage piles, and unpaved roads.

Potential emissions are based on controlled emission factors (EFs) for the crusher and conveyors, and uncontrolled EFs for truck loading and truck unloading, taken from AP-42, Fifth Edition, Chapter 11, Section 11.19.2 – Crushed Stone Processing and Pulverized Mineral Processing (08/04). Truck loading, truck unloading, and conveyors are assumed to process 300 TPH of materials. Storage pile emissions are based on uncontrolled EFs from AP-42, Chapter 13 – Miscellaneous Sources (Chapter 13), Section 13.2.4 – Aggregate Handling and Storage Piles (11/06). Potential emissions for vehicle travel on unpaved roads are based on uncontrolled EFs from AP-42, Chapter 13, Section 13.2.2 – Unpaved Roads (11/06). A seventy percent (70%) control efficiency was applied for water suppression to control fugitive dust from truck loading, truck unloading, storage piles, and unpaved roads as estimated in AP-42, Chapter 11, Section 11.19.1.2 – Emissions and Controls (11/95).

Portable Crushing Plant

Portable Crushing Plant^{1,2}	
Pollutant	300 TPH Eagle Crusher Emissions (TPY)
	Unlimited 8,760 hrs/yr
PM	1.58
PM ₁₀	0.71
PM _{2.5}	0.13

¹Particulate Matter (PM)

²Tons per year (TPY)

Truck Loading, Truck Unloading, Conveyors, Storage Piles, and Unpaved Roads

Truck Loading, Truck Unloading, Conveyors, Storage Piles, and Unpaved Roads					
Pollutant	Truck Loading Emissions (TPY)	Truck Unloading Emissions (TPY)	Conveyors Transfer Points (4x) Emissions (TPY)	Unpaved Road Emissions (TPY)	Storage Piles Emissions (TPY)
	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr
PM	0.077	0.012	0.736	12.77	3.14
PM ₁₀	0.039	0.006	0.242	3.12	1.49
PM _{2.5}	0.012	0.002	0.068	0.31	0.23

456 hp Caterpillar DE

The 456 hp Caterpillar DE equipped on the portable Eagle crusher is fired on ultra-low sulfur diesel (ULSD) with a maximum sulfur content of 0.0015% by weight. Carbon monoxide (CO) and nitrogen oxides (NO_x) and PM emissions are based on the U.S. Environmental Protection Agency (EPA) Nonroad Compression-Ignition Engines Exhaust Emission Standards (3/16) for Tier 4 Final certification plus twenty-five percent (25%) as a conservative approach to account for tier certification variations. Mass balance method is used to determine sulfur dioxide (SO₂) emissions. Volatile Organic Compounds (VOC) emissions are based on emission factors from EPA AP-42 Compilation of Air Emissions Factors from Stationary Sources (AP-42), Chapter 3 – Stationary Internal Combustion Sources, Section 3.3 – Gasoline and Diesel Industrial Engines, Table 3.3-1 – Emission Factors for Uncontrolled Gasoline and Diesel Industrial Engines (4/25). HAPs emissions are based on emission factors from AP-42, Chapter 3, Section 3.3 – Gasoline and Diesel Industrial Engines, Table 3.3-2 – Speciated Organic Compound Emission Factors for Uncontrolled Diesel Engines (4/25).

456 hp Caterpillar DE^{1,2,3,4,5,6}		
Pollutant	Emissions (lbs/hr)	Unlimited Emissions 8,760 hrs/yr (TPY)
CO	3.28	14.4
NO _x	0.38	1.6
SO ₂	0.005	0.02
PM	0.019	0.082
PM ₁₀	0.018	0.079
PM _{2.5}	0.017	0.074
VOC	1.06	2.2
HAPs	0.02	0.086

¹CO, NO_x, and PM emission factors are taken from EPA Tier 4 Final Standards plus twenty-five percent (25%) as a conservative approach to account for tier certification variations (3/16).

²Assume PM₁₀ = 96% of PM, and PM_{2.5} = 90% of PM per AP-42, Appendix B.2, Table B.2-2 (1/95).

³SO₂ emissions are based on diesel fuel consumption rate of 22.1 gal/hr, density of 7.05 lbs/gal, percent sulfur content of 0.0015%, SO₂ molar mass of 64.06 g/mol, and S molar mass of 32.065 g/mol.

⁴TOC exhaust emission factor is used for VOC emissions and is taken from AP-42, Chapter 3, Section 3.3, Table 3.3-1 (4/25).

⁵HAPs emission factors are taken from AP-42, Chapter 3, Section 3.3, Table 3.3-2 (4/25).

⁶The 456 hp Caterpillar DE is permitted to operate 8,760 hrs/yr.

HAPs

HAPs emissions for the 456 hp Caterpillar DE is shown in the table below:

HAPs Emissions^{1,2}		
Pollutant	456 hp Caterpillar DE Unlimited Emissions (lbs/hr)	Total Unlimited Emissions (TPY)
Benzene	2.82E-03	1.24E-02
Toluene	1.24E-03	5.42E-03
Xylenes	8.63E-04	3.78E-03
Propylene	7.81E-03	3.42E-02
1,3-Butadiene	1.18E-04	5.19E-04
Formaldehyde	3.57E-03	1.56E-02
Acetaldehyde	2.32E-03	1.02E-02
Acrolein	2.80E-04	1.23E-03
Naphthalene	2.57E-04	1.12E-03
Acenaphthylene	1.53E-05	6.71E-05
Acenaphthene	4.30E-06	1.88E-05
Fluorene	8.84E-05	3.87E-04
Phenanthrene	8.90E-05	3.90E-04
Antracene	5.66E-06	2.48E-05
Fluoranthene	2.30E-05	1.01E-04
Pyrene	1.45E-05	6.34E-05
Benzo(a)anthracene	5.09E-06	2.23E-05
Chrysene	1.07E-06	4.68E-06
Benzo(b)fluoranthene	3.00E-07	1.31E-06
Benzo(k)fluoranthene	4.69E-07	2.06E-06
Benzo(a)pyrene	5.69E-07	2.49E-06
Indeno(1,2,3-cd)pyrene	1.14E-06	4.97E-06
Dibenz(a,h)anthracene	1.77E-06	7.73E-06
Benzo(g,h,i)perylene	1.48E-06	6.48E-06
Total HAPs		0.086

¹Potential HAPs emissions for diesel engines with rated horsepower up to 600 hp are based on emission factors taken from AP-42, Chapter 3, Section 3.3, Table 3.3-2 (4/25).

²Total Polycyclic Aromatic Hydrocarbons (PAH) is not included in the above table since Total PAH includes the sum of pollutants from Naphthylene through Benzo(g,h,i)perylene as specified in the above table.

HAPs Assessment

HAP emissions are based on AP-42, Chapter 3, Sections 3.3. The potential total HAPs emission for the 456 hp Caterpillar DE with annual operation of 8,760 hours is 0.086 TPY for this facility. Because the potential to emit HAPs is well below ten (10) TPY for any single HAP and twenty-five (25) TPY for any combination of HAPs, this facility is an area source.

Greenhouse Gas (GHG) Emissions

Total GHG emissions on a CO₂ equivalent (CO₂e) basis are summarized in the table below:

GHG Emissions^{1,2,3}			
GHG	GWP	456 hp Caterpillar DE Unlimited 8,760 hrs/yr (metric tons/yr)	CO ₂ e Emissions 456 hp Caterpillar DE Unlimited 8,760 hrs/yr (metric tons/yr)
CO ₂	1	1,961.6	1,961.6
CH ₄	28	0.08	2.2
N ₂ O	265	0.016	4.2
Total CO ₂ e Emissions for the Project			1,968 (2,169 short ton)

¹GWP factors are taken from 40 CFR Part 98, Subpart A, Table A-1.

²The 456 hp Caterpillar DE is permitted to operate 8,760 hrs/yr as proposed by the Permittee.

³Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O) emissions are based on GHG Emissions Factors Hub for Distillate Fuel Oil No. 2 located at EPA Center for Corporate Climate Leadership website (<https://www.epa.gov/climateleadership/center-corporate-climate-leadership-ghg-emission-factors-hub>) and the heat input rate for the 456 hp Caterpillar DE.

Project Emissions Summary

Project Emissions Summary^{1,2,3,4}			
Pollutant	Total Facility Emissions (TPY)	Reasonably Capturable Fugitive & Point Source Emissions (TPY)	Non-Capturable Fugitive Emissions (TPY)
	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr	Unlimited 8,760 hrs/yr
CO	14.4	14.4	0
NO _x	1.6	1.6	0
SO ₂	0.02	0.02	0
PM	18.4	1.66	16.73
PM ₁₀	5.7	0.79	4.89
PM _{2.5}	0.8	0.21	0.62
VOC	4.6	4.64	0
HAPs	0.086	0.086	0
CO ₂ e	2,170	2,170	0

¹Total Facility Emissions include Reasonably Capturable Fugitive, Point Source, and Non-Capturable Fugitive emissions.

²Reasonably capturable Fugitive and Point Source emissions include emissions from the 300 TPH Eagle portable crusher and 456 hp Caterpillar DE equipped on the crusher.

³Non-capturable fugitive emissions include emissions from truck unloading, truck loading, conveyors, storage piles, and unpaved roads.

⁴This facility is permitted to operate 8,760 hrs/yr.

Synthetic Minor Source

A synthetic minor source means a source that otherwise has the potential to emit regulated New Source Review (NSR) pollutants in the amounts at or above the thresholds for major sources but has taken restrictions, so that its potential to emit is less than such amounts for major sources. Since this is not a listed source in the definition of "Major Source" in HAR §11-60.1-1, non-capturable fugitive emissions from truck loading, truck unloading, conveyors, storage piles, and unpaved roads are not included in the major source determination in accordance with the HAR §11-60.1-1. Only capturable fugitive emissions from the crusher and point source emissions from the DE are considered.

This facility is not a synthetic minor source because the facility does not have the potential to emit point source and capturable fugitive emissions above the major source threshold if operated 8,760 hours per year. See the Proposed Project section that demonstrates the operation of equipment from multiple permits on the same site does not have the potential to emit at or above major source levels.

AIR QUALITY ASSESSMENT

By way of background, an ambient air quality impact assessment was conducted by CFM Environmental, LLC, on behalf of the Permittee and was submitted on September 27, 2024, and a final version on November 8, 2024, to reflect the operation of the 456 hp Caterpillar DE as a stationary source on the base yard. AERSCREEN View air dispersion modeling software was used for the ambient air quality impact assessment for comparison with the National and Hawaii State Ambient Air Quality Standards. The DE was modeled at two (2) adjacent locations on the base yard for CO, NO₂, SO₂, PM₁₀, and PM_{2.5} emissions. Location 1 is proposed at UTM: Zone 4Q; 461,375 m E, 2,431,075 m N (NAD-83), and Location 2 is proposed at UTM: Zone 4Q; 461,406 m E, 2,431,095 m N. Other locations of the base yard are occupied and/or used for heavy equipment traffic, equipment maintenance area, storage, office, and parking. The DE was modeled with an upward vertical stack of fourteen and a half (14.5) feet above ground level. The analysis shows compliance with the National and Hawaii State Ambient Air Quality Standards.

However, because the AERSCREEN was based on emission factors from the manufacturer's performance data without details as to what exactly this information represents, this review utilizes AERMOD View and is based on EPA Tier 4 Final certification emissions plus twenty-five percent (25%) as a conservative approach to account for tier certification variations.

Stack Parameters and Emission Rates Input into the AERMOD Model

Stack	Emission Rates ¹					Stack Parameters ²			
	CO (g/s)	NO ₂ (g/s)	SO ₂ (g/s)	PM ₁₀ (g/s)	PM _{2.5} (g/s)	Height (ft)	Temp (K)	Velocity (m/s)	Diameter (m)
456 hp Caterpillar DEG	0.4136	0.0473	0.00059	0.0023	0.0021	14.5	749.5	37.56	0.1

¹CO, NO_x, and PM emission factors are taken from EPA Tier 4 Final Standards (3/16) plus twenty-five percent (25%) as a conservative approach to account for tier certification variations. Assume PM₁₀ = 96% of PM, and PM_{2.5} = 90% of PM per AP-42, Appendix B.2, Table B.2-2 (1/95). SO₂ emissions are based on ULSD fuel with a maximum sulfur content of 0.0015% by weight.

²The stack parameters are provided with the application on April 3, 2024.

Terrain

Terrain data was taken from the U.S. Geological Survey website (National Elevation Dataset) and was imported directly into the modeling software. Data resolution is one (1) arc second (thirty (30) meters), and the horizontal datum is NAD-83.

Receptor Grid

A total of 1,024 receptors were used for the modeling analysis. Receptors extend 465 meters from the stack location with receptor spacings of 30 meters.

Meteorological Data

The meteorological data from Lake Environmental for a five (5) year period (2014 – 2018) was used for the analysis.

Dispersion Coefficient

Rural dispersion coefficient was selected.

Building Downwash

The 456 hp Caterpillar DE is mounted on top of a portable crusher with the following dimensions:

Height: 14 feet, 6 inches

Length: 41 feet, 4.8 inches

Width: 10 feet

NO_x to NO₂

The results in the table below represent the use of Tier 1, full conversion method of NO_x to NO₂

Ambient Air Quality Impacts of the 456 hp Caterpillar DE at Baseyard Location 1

Pollutant	Averaging Time	Resulting Concentration ^{1,2,3} (µg/m ³)	Background Concentration ⁴ (µg/m ³)	Total Impact (µg/m ³)	Ambient Air Quality Standards (µg/m ³)	Percentage of Standard (%)
CO	1-Hour	764.7	7,790.1	8,554.8	10,000	85.5
	8-Hour	569.6	1,145.6	1,715.2	5,000	34.3
NO ₂	1-Hour	72.8	41.4	114.2	188	60.7
	Annual	22.1	4.9	27.0	70	38.6
SO ₂	1-Hour	1.09	18.3	19.4	197	9.8
	3-Hour	0.93	13.1	14.0	1,300	1.1
	24-Hour	0.69	2.6	3.3	365	0.9
	Annual	0.28	0	0.28	80	0.4
PM ₁₀	24-Hour	2.69	36.0	38.7	150	25.8
	Annual	1.08	15.1	16.2	50	32.4
PM _{2.5}	24-Hour	2.45	9.0	11.45	35	32.7
	Annual	0.98	4.3	5.3	9	58.7

¹AERMOD model resulting concentration was based on minimum stack height of 14.5 feet above ground elevation to ensure compliance with the National and Hawaii State Ambient Air Quality Standards.

²Tier 1 was utilized for NO_x to NO₂ full conversion.

³AERMOD modeling was based on annual operating time of eight thousand seven hundred sixty (8,760) hours.

⁴The background air quality data is taken from the 2024 Air Quality Data Annual Summary published by the State of Hawaii, which includes 2022-2024 air quality data. The concentrations are taken from State and Local Air Monitoring Station (SLAMS) located at Kapolei monitoring station for the CO, NO₂, SO₂, PM_{2.5}, and PM₁₀. The 1-Hour NO₂ is based on 3-year average of the 98th percentile values. The 1-Hour SO₂ is based on 3-year average of the 99th percentile values. The 24-Hour PM_{2.5} is based on 3-year average of the 98th percentile values, and the Annual PM_{2.5} is based on 3-year annual average.

Ambient Air Quality Impacts of the 456 hp Caterpillar DE at Baseyard Location 2

Pollutant	Averaging Time	Resulting Concentration ^{1,2,3} (µg/m ³)	Background Concentration ⁴ (µg/m ³)	Total Impact (µg/m ³)	Ambient Air Quality Standards (µg/m ³)	Percentage of Standard (%)
CO	1-Hour	657.5	7,790.1	8,447.6	10,000	84.5
	8-Hour	588.8	1,145.6	1,734.4	5,000	34.7
NO ₂	1-Hour	70.9	41.4	112.3	188	59.7
	Annual	22.6	4.9	27.5	70	39.3
SO ₂	1-Hour	0.94	18.3	19.2	197	9.8
	3-Hour	0.89	13.1	14.0	1,300	1.1
	24-Hour	0.70	2.6	3.3	365	0.9
	Annual	0.28	0	0.28	80	0.35
PM ₁₀	24-Hour	2.75	36.0	38.8	150	25.8
	Annual	1.10	15.1	16.2	50	32.4
PM _{2.5}	24-Hour	2.51	9.0	11.5	35	32.9
	Annual	1.00	4.3	5.3	9	58.9

¹AERMOD model resulting concentrations were based on minimum stack height of 14.5 feet above ground elevation.

²Tier 1 was utilized for NO_x to NO₂ full conversion.

³AERMOD modeling was based on annual operating time of 8,760 hours.

⁴The background air quality data is taken from the 2024 Air Quality Data Annual Summary published by the State of Hawaii, which includes 2022-2024 air quality data. The concentrations are taken from SLAMS located at Kapolei monitoring station for the CO, NO₂, SO₂, PM_{2.5}, and PM₁₀. The 1-Hour NO₂ is based on 3-year average of the 98th percentile values. The 1-Hour SO₂ is based on 3-year average of the 99th percentile values. The 24-Hour PM_{2.5} is based on 3-year average of the 98th percentile values, and the Annual PM_{2.5} is based on 3-year annual average.

Results

The results show that the predicted ambient air quality impacts from the 456 hp Caterpillar DE comply with the HI AAQS and NAAQS.

SIGNIFICANT PERMIT CONDITIONS

1. Fugitive Emission Limits

- a. The permittee shall not cause to be discharged into the atmosphere from the crusher, fugitive emissions which exhibit greater than twelve percent (12%) opacity.
- b. The permittee shall not cause to be discharged into the atmosphere from any transfer point on the belt conveyors or from any other affected facility, fugitive emissions which exhibit greater than seven percent (7%) opacity.

Reason: The opacity and fugitive dust conditions are incorporated into the permit pursuant to 40 CFR Part 60, Subpart OOO.

2. Minimum Stack Height

The exhaust stack of the 456 hp Caterpillar DE shall be at a minimum height of 14.5 feet above ground elevation.

Reason: The minimum stack height condition is incorporated to ensure compliance with the ambient air quality standards.

3. Fuel Limits

The DE shall be fired only on ultra-low sulfur diesel (ULSD) fuel with the following specifications:

- a. Maximum sulfur content not to exceed 0.0015% by weight; and
- b. Minimum cetane index of forty (40) or maximum aromatic content of thirty-five (35) volume percent.

Reason: The fuel limits are incorporated into the permit pursuant to 40 CFR Part 60, Subpart IIII, §60.4207(b).

4. Change of Locations

- a. The operation of the equipment covered by this temporary CSP shall involve at least one (1) location change during the term of this permit. **Moving within a single property is not considered a location change.**
- b. Location changes of the equipment shall be in accordance with Attachment II, Special Conditions, Section G. For each change in location, the Department reserves the right to impose additional operational controls and restrictions if a site evaluation indicates the controls and/or restrictions are necessary.

Reason: 4.a. is added to ensure the permittee complies with the one (1) location change during the term of the permit requirement pursuant to the “temporary covered source” definition specified under HAR §11-60.1-81.

CONCLUSION

Pacific Concrete Cutting & Coring, Inc., submitted an initial permit application to operate a portable 300 TPH Eagle impact crusher equipped with a 456 hp Caterpillar DE. The facility's potential to emit and the ambient air quality assessment are based on operation of the equipment for 8,760 hours per year. The AERMOD results show that the predicted ambient air quality impacts from the 456 hp Caterpillar DE comply with the National and Hawaii State Ambient Air Quality Standards. Issuance of a temporary CSP is recommended based on the review of the information provided by the Permittee and subject to the permit conditions. The draft/proposed permit is subject to a thirty (30) day public comment period and forty-five (45) day EPA review.

Ukris Wongse-ont
February 13, 2026

Application and Supporting Information

APR 3 - 2024

POSTMARK

APR 7 2024



PACIFIC CONCRETE CUTTING & CORING, INC.

Post Office Box 662261, Lihue, Kauai, Hawaii 96766

Telephone: 808-245-7171 *Facsimile: 808-245-9393 *Website: www.pccchawaii.com

TRANSMITTAL

DATE: March 29, 2024
TO: State of Hawaii Department of Health- Clean Air Branch
FROM: Julie Simonton
SUBJECT: Application for a New Temporary Covered Source Permit

☐ FYI

☐ Urgent

☒ Document Enclosed

☐ Reply

☐ Per Request

Please see enclosed application for a new Temporary Covered Source Permit.

Let me know if you have any questions or need any additional information.

Thank you,

Julie Simonton

M021806

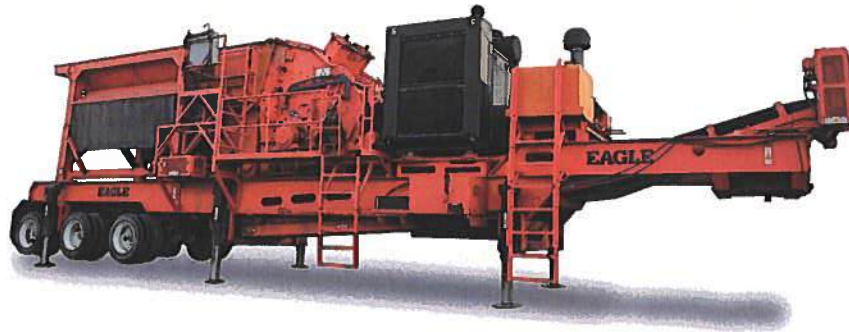
APR 3 - 2024

PCCC Application for New Temporary Covered Source Permit **POSTMARK**

APR 1 2024

APPLICATION FOR A NEW TEMPORARY COVERED SOURCE PERMIT
(HAR 11-60.1-83 & 11-60.1-91)

For
300 TPH EAGLE 1200-25-CV Impact Crusher
located at
Various Temporary Sites, State of Hawaii



FACILITY NAME:

Crushing Plant

OWNER:

Pacific Concrete Cutting & Coring, Inc. (PCCC)
P.O. Box 662261
Lihue, Hawaii 96766

March 27, 2024

PREPARED BY:

CFM Environmental LLC
Tel.: (808) 779-2948
Email: fredpeyer@gmail.com

File 2401015

Introduction

This is an application for a new temporary covered source permit for a 300 TPH EAGLE 1200-25-CV Impact Crusher powered by a 456 HP CATERPILLAR C9.3B diesel engine, owned and operated by Pacific Concrete Cutting & Coring, Inc., P.O. Box 662261, Lihue, HI 96766.

There is no request to limit operating hours.

This is a temporary permit application where the equipment will be moved at least once during any 12-month period.

Note:

The crusher is mobile mounted on a trailer to be pulled by a truck and is therefore not self-propelled. Since the equipment will be moved at least once per 12-month period, the engine is considered a "Nonroad Engine". A nonroad engine certification is included with this covered source permit application in appendix D.

Alternate operating scenario: The permittee may replace the diesel engine with a temporary replacement unit of the same or smaller size if any repair reasonably warrants the removal of the diesel engine from its site.

TABLE OF CONTENTS

DESCRIPTION	PAGE
Standard Permit Application Form S-1, Forms C1 & C2	5
Compliance Plan	10
Compliance Certification	13
HAR 11-60.1-91 Temporary Covered Source Permit Application	16
HAR 11-60.1-91 (a) Certification	16
HAR 11-60.1-91 (b) Temporary Covered Source Application	16
HAR 11-60.1-83 Covered Source Application	17
HAR 11-60.1-83 (1) Company Information	17
HAR 11-60.1-83 (2) Source Information	17
HAR 11-60.1-83 (3) Emission Trading	18
HAR 11-60.1-83 (4) Maximum Emission Rates	18
HAR 11-60.1-83 (5) Identification of Points of Emission	18
HAR 11-60.1-83 (6) Identification of Air Pollution Control Equipment	18
HAR 11-60.1-83 (7) Applicable Requirements	19
HAR 11-60.1-83 (8) Operational Limitations and Work Practices	19
HAR 11-60.1-83 (9) Calculations and Assumptions	20
HAR 11-60.1-83 (10) Schedule for Construction	20
HAR 11-60.1-83 (11) Assessment of Ambient Air Quality Impact for Exist. Sources	21
HAR 11-60.1-83 (12) Assessment of Ambient Air Quality Impact for New Sources	21
HAR 11-60.1-83 (13) Subchapter 7 Applicability	21
HAR 11-60.1-83 (14) Risk Assessment	21
HAR 11-60.1-83 (15) Source Emission Testing	21
HAR 11-60.1-83 (16) Other Available Control Technologies	21
HAR 11-60.1-83 (17) Exemptions from Applicable Requirements	21
HAR 11-60.1-83 (18) Insignificant Activities	22
HAR 11-60.1-83 (19) Compliance Plan	22
HAR 11-60.1-83 (20) Compliance Certification	22
HAR 11-60.1-83 (21) Other Information	22
Application Fee	23
Appendix A: Location & Site Maps	24

Appendix B: Annual Emissions Calculations	28
Appendix C: Equipment Information and Data	42
Appendix D: Nonroad Engine Certification	49
Appendix E: Assessment of Ambient Air Quality Impact	53

Standard Application Form S-1

File/Application No.: _____

STANDARD PERMIT APPLICATION FORM
HAWAII DEPARTMENT OF HEALTH
ENVIRONMENTAL MANAGEMENT DIVISION
CLEAN AIR BRANCH

P.O. Box 3378 • Honolulu, HI 96801-3378 • Phone: (808) 586-4200

1. Company Name: **PACIFIC CONCRETE CUTTING & CORING, INC.**
2. Facility Name (if different from the Company): **Crushing Plant**
3. Mailing Address: **P.O. Box 66226**
 City: **Lihue** State: **HI** Zip Code: **96766**
 Phone Number: **(808) 245-7171**
4. Name of Owner/Owner's Agent: **Eli Brainerd**
 Title: **President** Phone: **(808) 245-7171**
 Mailing Address: **P.O. Box 66226**
 City: **Lihue** State: **HI** Zip Code: **96766**
5. Plant Site Manager/Other Contact: **Eli Brainerd**
 Title: **President** Phone: **(808) 245-7171**
 Mailing Address: **P.O. Box 66226**
 City: **Lihue** State: **HI** Zip Code: **96766**
6. Permit Application Basis: (Check One.)

Initial Permit for a New Source	Initial Permit for an Existing Source
Renewal of Existing Permit	General Permit
☒ Temporary Source	Transfer of Permit
Modification: ==> Is Modification?	Significant Minor Uncertain
7. If renewal or modification, include existing permit number:
8. Does the Proposed Source require a County Special Management Area Permit? Yes ☐ No ☒
9. Type of Source (Check One): ☒ Covered Source ☐ Covered and PSD Source
☐ Noncovered Source ☐ Uncertain
10. Standard Industrial Classification Code (SICC), if known: **1442**

11. Proposed Equipment/Plant Location Address: **Ehiku Street**
City: **Lihue** State: **HI** Zip Code: **96766**

UTM Coordinates: **Zone 4, 461,375 m East / 2,431,075 m North**

12. General Nature of Business: **Mobile Crushing Plant**

13. Date of Planned Commencement of Construction or Modification: **upon approval**

14. Is **any** of the equipment to be leased to another individual or entity? Yes ☐ No ☒

15. Type of Organization: ☒ Corporation ☐ Individual Owner ☐ Partnership
Government Agency (Government Facility Code:
Other:

Any applicant for a permit who fails to submit any relevant facts or who has submitted incorrect information in any permit application shall, upon becoming aware of such failure or incorrect submittal, promptly submit such supplementary facts or corrected information. In addition, an applicant shall provide additional information as necessary to address any requirements that become applicable to the source after the date it filed a complete application, but prior to the issuance of the noncovered source permit or release of a draft covered source permit. (§11-60.1-64 & 11-60.1-84)

RESPONSIBLE OFFICIAL (as defined in §11-60.1-1):

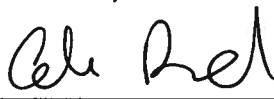
Name (Last): **Brainerd** (First): **Eli** (MI):
Title: **President** Phone: **(808) 245-7171**

Mailing Address: **P.O. Box 66226 **
City: **Lihue** State: **HI** Zip Code: **96766**

CERTIFICATION by Responsible Official (pursuant to §11-60.1-4)

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution control, and any permit issued thereof.

NAME (Print/Type): **Eli Brainerd, President**

(Signature): 

Date: 3/29/24

COMPANY NAME: PACIFIC CONCRETE CUTTING & CORING, INC. FILE NO: _____

LOCATION: TEMPORARY LOCATIONS, STATE OF HAWAII PAGE 1 OF 2

EMISSIONS UNITS TABLE

(Make as many copies of this page as necessary)

REVIEW OF APPLICATIONS AND ISSUANCE OF PERMITS WILL BE EXPEDITED BY SUPPLYING ALL NECESSARY INFORMATION ON THIS TABLE.

[illegible]

COMPANY NAME: PACIFIC CONCRETE CUTTING & CORING, INC. FILE NO.: _____

LOCATION: TEMPORARY LOCATIONS, STATE OF HAWAII PAGE 2 OF 2

(Make as many copies of this page as necessary)

EMISSIONS UNITS TABLE

REVIEW OF APPLICATIONS AND ISSUANCE OF PERMITS WILL BE EXPEDITED BY SUPPLYING ALL NECESSARY INFORMATION ON THIS TABLE.

AIR POLLUTANT DATA: EMISSION POINTS				AIR POLLUTANT	AIR POLLUTANT EMISSION RATE		UTM COORDINATES			STACK SOURCE PARAMETERS					
STACK NO.	UNIT NO.	EQUIPMENT NAME/ DESCRIPTION AND SICC CODE	EQUIP DATE	REGULATED HAZARD. AIR POLLUT. NAME	# / HOUR	TONS/ YEAR	ZONE	EAST (M)	NORTH (M)	HEIGHT ABOVE GROUND (M)	DIRECT	INSIDE DIA. (M)	VEL (M/S)	ACTUAL FLOW RATE (M3/S)	TEMP. DEGREE K
	1	456 HP CATERPILLAR C9.3B DIESEL ENGINE	2023	NOx	0.190	0.832	4	461, 375	2,431, 075	4.42	Up	0.1	37.56	0.295	749.5
				CO	0.050	0.219									
				SOx	0.471	2.062									
				PM	0.002	0.010									
				PM10	0.002	0.010									
				PM2.5	0.002	0.010									
				CO2	493.0	2159.34									
				Aldehydes	0.212	0.928									
				TOC	1.090	4.775									
				Benzene	2.83E-03	1.24E-02									
				Toluene	1.24E-03	5.43E-03									
				Xylenes	8.63E-04	3.78E-03									
				Propylene	7.81E-03	3.42E-02									
				1,3 Butadiene	1.18E-04	5.19E-04									
				Formaldehyde	3.57-E-03	1.57E-02									
				Acetaldehyde	2.32E-03	1.02E-02									
				Acrolein	2.80E-04	1.23E-03									
				Naphthalene	2.57E-04	1.12E-03									
				TOTAL HAP's	1.93E-02	8.45E-02									
				Total PAH	5.09E-04	2.23E-03									
				NH3	0.064	0.281									

File No.: _____

COMPLIANCE PLAN

The Responsible Official shall submit a Compliance Plan with the following permit applications, and at such other times as requested by the director.

- | | |
|---|--|
| <ul style="list-style-type: none"> • Initial Noncovered Source Permit Application • Temporary Noncovered Source Permit Application • General Noncovered Source Permit Application • Application for a Noncovered Source Permit Renewal • Application for a Modification to a Noncovered Source | <ul style="list-style-type: none"> • Initial Covered Source Permit Application X Temporary Covered Source Permit Application • General Covered Source Permit Application • Application for a Covered Source Permit Renewal & Modification • Application for a Minor Modification to a Covered Source |
|---|--|

1. Compliance status with respect to all Applicable Requirements:

Will your facility be in compliance, or Is your facility in compliance, with all applicable requirements in effect at the time of your permit application submittal?

X YES {If YES, complete items a and c below}

{If NO, complete items a-c below}

a. Identify all applicable requirement(s) for which compliance is achieved:

Hawaii Administrative Rules (HAR) Title 11
Chapter 11-59, Ambient Air Quality Standards
Chapter 11-60.1 Air Pollution Control
 Subchapter 1, General Requirements
 Subchapter 2, General Prohibitions
 11-60.1-31 Applicability
 11-60.1-32 Visible Emissions
 11-60.1-33 Fugitive Dust
 11-60.1-38 Sulfur Oxides from Fuel Combustion
 Subchapter 5, Covered Sources
 Subchapter 6, Fees for Covered Sources
 Subchapter 8, Standards of Performance for Stationary Sources
 11-60.1-161 New Source Performance Standards
 Subchapter 9, Hazardous Air Pollutant Sources
40 Code of Federal Regulations (CFR) Part 60 – Standards of Performance for New Stationary Sources
 Subpart A – General Provisions
 Subpart 000 – Standards of Performance for Nonmetallic Mineral Processing Plants

Provide a statement that the source is in compliance and will continue to comply with all such requirements.
PACIFIC CONCRETE CUTTING & CORING, INC states that the plant to be covered under this application is in compliance with all the above applicable requirements.

b. Identify all applicable requirement(s) for which compliance is NOT achieved:

N/A

PCCC Application for New Temporary Covered Source Permit

Provide a detailed Schedule of Compliance and a description of how the source will achieve compliance with all such applicable requirements. Use separate sheets of paper, if necessary.

<u>Description of Remedial Action</u>	<u>Expected Date of Completion</u>
N/A	

- c. Identify any other applicable requirement(s) with a future compliance date that your source is subject to. These applicable requirements may be in effect AFTER permit issuance:

<u>Applicable Requirement</u>	<u>Effective Date</u>	<u>Currently in Compliance?</u>
N/A		

If the source is not currently in compliance, submit a Schedule of Compliance and a description of how the source will achieve compliance with all such applicable requirements:

<u>Description of Proposed Action/Steps to Achieve Compliance</u>	<u>Expected Date of Achieving Compliance</u>
N/A	

Provide a statement that the source on a timely basis will meet all these applicable requirements.

N/A

If the expected date of achieving compliance will NOT meet the applicable requirement's effective date, provide a more detailed description of all remedial actions and the expected dates of completion.

<u>Description of Remedial Action</u>	<u>Expected Date of Completion</u>
N/A	

2. Compliance Progress Reports:

- a. If a compliance plan is being submitted to remedy a violation, complete the following information:

Frequency of Submittal:

Beginning Date:

(less than or equal to 6 months)

b. Date(s) that the Action described in (1)(b) was achieved:

Remedial Action Date Achieved

N/A

c. Narrative description of why any date(s) in (1)(b) was not met, and any preventive or corrective measures taken in the interim:

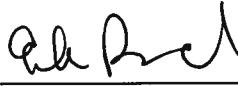
N/A

Certification of Compliance with all Applicable Requirements:

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution Control, and any permit issued thereof.

Name (Print/Type): **Eli Brainerd, President**

(Signature): 

Date: 8/29/24

File No.: _____

COMPLIANCE CERTIFICATION

The Responsible Official shall submit a Compliance Certification with the following covered source permit applications, and at such other times as requested by the director. (Complete as many copies of this form as necessary).

- Initial Covered Source Permit Application;
- X Temporary Covered Source Permit Application;**
- General Covered Source Permit Application;
- Application for a Covered Source Permit Renewal & Modification
- Application for a Significant Modification to a Covered Source.

During the term of a covered source permit, the responsible official shall also submit a Compliance Certification to the director and the Administrator at least every six months, or more frequently as set by an applicable requirement.

INITIAL COVERED SOURCE PERMIT APPLICATION: COMPLETE & SUBMIT THIS COVER PAGE AND SECTION A OF THIS FORM.

DURING THE TERM OF A COVERED SOURCE PERMIT: COMPLETE & SUBMIT THIS COVER PAGE AND SECTION B OF THIS FORM.

Certification of Compliance with all Applicable Requirements:

This certification must be signed by a Responsible Official. Applications without a signed certification will be deemed incomplete.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record. I further state that I will assume responsibility for the construction, modification, or operation of the source in accordance with the Hawaii Administrative Rules, Title 11, Chapter 60.1, Air Pollution control, and any permit issued thereof.

Name (Print/Type): **Eli Brainerd, President**

(Signature):  Date: 3/29/24

Complete the following information for **each** applicable requirement and/or term or condition of the permit that applies to **each** emissions unit at the source. Also include any additional information as required by the director. The compliance certification may reference information contained in a previous compliance certification submittal to the director, provided such referenced information is certified as being current and still applicable.

A. For compliance certifications submitted with any covered source permit application.

1. Schedule for submission of Compliance Certifications during the term of the permit:

Frequency of Submittal: **Annual**

Beginning Date: **upon issuance of permit**

2. Emissions Unit No./Description: **300 TPH Eagle Impact Crusher with 456 HP Caterpillar Diesel Engine**
3. Identify the applicable requirement(s) that is/are the basis of this certification:

Hawaii Administrative Rules (HAR) Title 11
Chapter 11-59, Ambient Air Quality Standards
Chapter 11-60.1 Air Pollution Control
Subchapter 1, General Requirements
Subchapter 2, General Prohibitions
11-60.1-31 Applicability
11-60.1-32 Visible Emissions
11-60.1-33 Fugitive Dust
11-60.1-38 Sulfur Oxides from Fuel Combustion
Subchapter 5, Covered Sources
Subchapter 6, Fees for Covered Sources
Subchapter 8, Standards of Performance for Stationary Sources
11-60.1-161 New Source Performance Standards
Subchapter 9, Hazardous Air Pollutant Sources
40 Code of Federal Regulations (CFR) Part 60 – Standards of Performance for New Stationary Sources
Subpart A – General Provisions
Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

4. Compliance status:
- a. Will the emissions unit be in compliance with the identified applicable requirement(s)?
- ☒ YES ☐ NO
- b. If YES, will compliance be continuous or intermittent?
- ☒ Continuous ☐ Intermittent
- c. If NO, explain.
5. The methods to be used in determining compliance of the emissions unit with the applicable requirement(s), including any monitoring, recordkeeping, reporting requirements, and/or test methods:

Annual Source Test
Sulfur in Fuel tested by Supplier
Daily Visual Observations
Monthly Visual Observation by Certified Reader

Provide a detailed description of the methods used to determine compliance: (e.g. monitoring device , type and location, test method description, or parameter being recorded, frequency of recordkeeping, etc.)

Daily Visual Checks
Application of Water Sprays
Record Keeping
Semi-Annual and Annual Emissions Report

6. Statement of Compliance with Enhanced Monitoring and Compliance Certification Requirements.

- a. Will the emissions unit identified in this application be in compliance with applicable enhanced monitoring and compliance certification requirements?

N/A ☐ YES ☐ NO

- b. If YES, identify the requirements and the provisions being taken to achieve compliance:

N/A

- c. If NO, describe below which requirements will not be met:

N/A

FOR AGENCY USE ONLY:	
File/Application No.:	_____
Island:	_____
Date Received:	_____

HAR 11-60.1-91 Temporary Covered Source Permit Application

HAR 11-60.1-91 (a) Certification

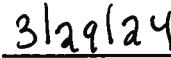
I certify that it is my intention to operate the same equipment at various temporary locations within the State of Hawaii with similar operational methods.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.



Eli Brainerd

President



Date

HAR 11-60.1-91 (b) Temporary Covered Source Application

The application and issuance of a temporary covered source permit is subject to the same procedures and requirements for an initial application and issuance of a covered source permit, including the requirements of section HAR 11-60.1-83.

HAR 11-60.1-83 Covered Source Permit Application

HAR 11-60.1-83 (1) Company Information

Please see Standard Application Form S-1 on page 6 of this application.

HAR 11-60.1-83 (2) Source Information

Equipment Information:

Impact Crusher:

Manufacturer : EAGLE
Year built : 2023
Model : 1200-25CV UM-25
Model Number : 33895000
Serial Number : 32 094
Max. Throughput : 300 TPH

Crusher Engine:

Manufacturer : CATERPILLAR
Year Built : 2023
Model : C9.3B
Serial Number : NGH06326
Size : 456 HP
Fuel : Ultra Low Sulfur Diesel (ULSD)
Max. Fuel Consumption : 22.1 gal/hr

Exhaust Height : 14'6" / 4.42 m
Exhaust Diameter : 4" / 0.10 m
Exhaust Temperature : 889.4°F
Exhaust Flow Rate : 625.6 ft³/min.

Manufacturer's Emission Rates (Performance Data [EM2778]):

Total NO_x (as NO₂) : 0.19 lb/hr
Total CO : 0.05 lb/hr
Total HC : 0.00 lb/hr
Total CO₂ : 493 lb/hr
Part. Matter : 0.00 lb/hr
Part. Matter : 1.00 g/hr (=0.0022 lbs/hr)

Description of Processes and Products

The source falls under SIC code 1442 (Construction Sand and Gravel)

Source material are rocks and/or unpainted concrete.

The plant produces aggregate from larger rocks or unpainted concrete.

The EAGLE 1200-25CV impact crusher is a portable crushing plant.

It features a two-step, 5' grizzly deck feeder to remove fines before crushing.

The feed material is loaded into the grizzly, then travels to the crusher. The crushed material falls onto the discharge conveyor belt. The belt either deposits the material into the feeder of another crusher or a screen or deposits it onto a stockpile.

HAR 11-60.1-83 (3) Emissions Trading

N/A, there is no emissions trading.

HAR 11-60.1-83 (4) Maximum Emission Rates

Emission rates of fugitive dust from the plant are based on AP42. Emission rates of the diesel engine are based on manufacturer information and AP42.

Plant emissions are controlled by a water spray system installed on the crusher.

Fugitive emissions from stockpiles and/or unpaved road traffic are controlled by water hose and/or a water truck.

As certified by the California Air Resources Board, this engine is a Tier 4 Final engine and meets the requirements of 13 CCR Sections 2423, 2425, 2426 and 2427.

The diesel engine manufacturer certifies the engine as an EPA Tier 4f.

For detailed calculations, please refer to appendix B, Annual Emissions Calculations.

HAR 11-60.1-83 (5) Identification of points of emissions

The only point emission is the exhaust pipe of the diesel engine.

HAR 11-60.1-83 (6) Identification of air pollution control equipment

The crusher is equipped with water-sprays to control fugitive dust. Unpaved plant areas and stockpiles are controlled by water truck or by existing water supply. The accepted rate of reduction for fugitive dust controlled by water sprays, is 70%.

The diesel engine is a certified EPA Tier 4f engine.

HAR 11-60.1-83 (7) Applicable Requirements

Hawaii Administrative Rules (HAR) Title 11

Chapter 11-59, Ambient Air Quality Standards

Chapter 11-60.1 Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31 Applicability

11-60.1-32 Visible Emissions

11-60.1-33 Fugitive Dust

11-60.1-38 Sulfur Oxides from Fuel Combustion

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources

Subchapter 8, Standards of Performance for Stationary Sources

11-60.1-161 New Source Performance Standards

Subchapter 9, Hazardous Air Pollutant Sources

40 Code of Federal Regulations (CFR) Part 60 – Standards of Performance for New Stationary Sources

Subpart A – General Provisions

Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants

Test Methods:

EPA Method 9 of 40 CFR Part 60, Appendix A-4, following procedures in 40 CFR 60.11.

Tests to be done by certified reader.

HAR 11-60.1-83 (8) Operational limitations and work practices

This permit application does not request any operation hour limitation. Operating hours for emission calculations are therefore set at 8760 hours per year.

The diesel engine will be fired only with Ultra Low Sulfur Diesel (ULSD) fuel with a sulfur content of not more than 0.0015% by weight.

This application requests the following as an alternate operating scenario:

The permittee may replace the diesel engine with an engine of the same size or smaller if warranted by breakdown of the existing engine.

The plant operates irregularly, with operation depending on job situation and demand. When operating, the plant typically operates 8 hours per day, 5 days per week.

The plant is portable and may be operated at different locations within the State of Hawaii. The plant will be moved at least once within any 12-month period. The diesel

engine which is mounted on the plant and provides power to the plant, is therefore considered a non-road engine. See Nonroad Engine Certification in Appendix D.

HAR 11-60.1-83 (9) Calculations and Assumptions

Maximum emission calculations for fugitive dust from the jaw crusher and screen are based on EPA AP42, tables 11.19.2-2, 8/04, 13.2.4, 11/06, 13.2.2, 11/06, and CEIDARS table PM2.5 fractions for Mineral Products, Crushing, Screening, Blasting, Loading and Unloading; on the maximum throughput of the plant as indicated by the manufacturer (300 tph); and on 8760 hours/year.

Maximum uncontrolled emissions are reduced by a 70% control factor since water sprays and (if applicable) a water truck, or grid water are used to control fugitive dust.

Maximum emission calculations for the diesel engine are based on manufacturers information for NO_x, CO, HC, CO₂, and PM. SO₂ is calculated from Sulfur Balance Method. All other emission factors are from AP42, 3.3 dated 10/96.

For emission calculations please see Appendix B. For manufacturer information for plant and engine, please see Appendix C.

Controlled emissions:

Controlled Crusher, Screen, & Stacker Emissions and Trigger Levels (TPY)					
Pollutant	Emissions (No Limits)	BACT Significant Levels	AERR Thresholds	DOH Levels	Wind Erosion And Vehicle Travel Emissions
CO	0.219	100	1000	250	0
NO _x	0.832	40	100	25	0
SO ₂	2.062	40	100	25	0
PM (TSP)	11.639	25	-	25	16.561
PM10	4.898	15	100	25	6.935
PM2.5	1.476	10	100	-	1.751
VOC	4.775	40	100	25	0
HAPs	0.084	-	-	5	0

HAR 11-60.1-83 (10) Schedule for Construction

The equipment to be covered under this permit application is already built and is being shipped to Hawaii. The equipment is highly mobile and can be set up and operate within a very short time.

HAR 11-60.1-83 (11) Assessment of Ambient Air Quality Impact for Existing Sources

Not applicable, this is a new source.

HAR 11-60.1-83 (12) Assessment of Ambient Air Quality Impact for New Sources

An assessment of the ambient air quality impact of the diesel engine has been conducted. Please see Appendix E on page 37.

HAR 11-60.1-83 (13) Subchapter 7 Applicability

Not Applicable

HAR 11-60.1-83 (14) Risk Assessment

The applicant will submit a risk assessment of the air quality related impacts caused by the modified covered source if requested by the Director.

HAR 11-60.1-83 (15) Source Emission Testing

No source emission testing has been conducted, but applicant will test as required by the permit once it is issued.

HAR 11-60.1-83 (16) Other Available Control Technologies

To the best knowledge of the applicant, no other or better control technologies are available.

HAR 11-60.1-83 (17) Exemptions from Applicable Requirements

There are no exemptions from applicable requirements.

HAR 11-60.1-83 (18) Insignificant Activities

Fuel and oil tanks on the equipment.

HAR 11-60.1-83 (19) Compliance Plan

See section standard permit application forms, compliance plan on page 10.

HAR 11-60.1-83 (20) Compliance Certification

See section standard permit application forms, compliance certification on page 13.

HAR 11-60.1-83 (21) Other Information

There is no other information.

Application Fee

The application fee of \$ 1000.00 for an initial temporary covered source permit for a non-toxic covered source is enclosed.
HAR 11-60.1 – 113 (b) (4) (A)

Check No 33138 dated 3/29/24

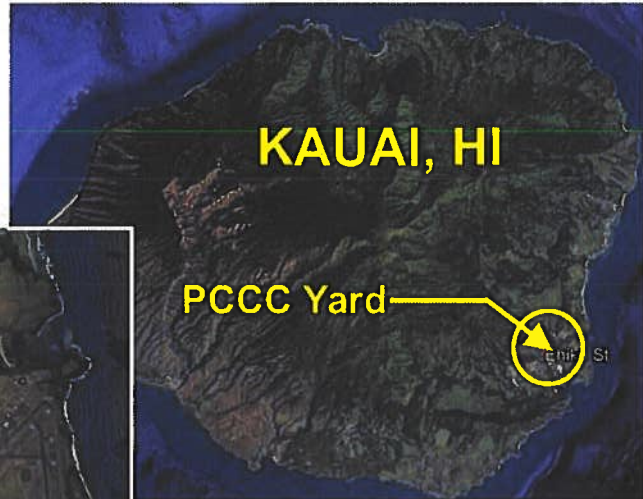
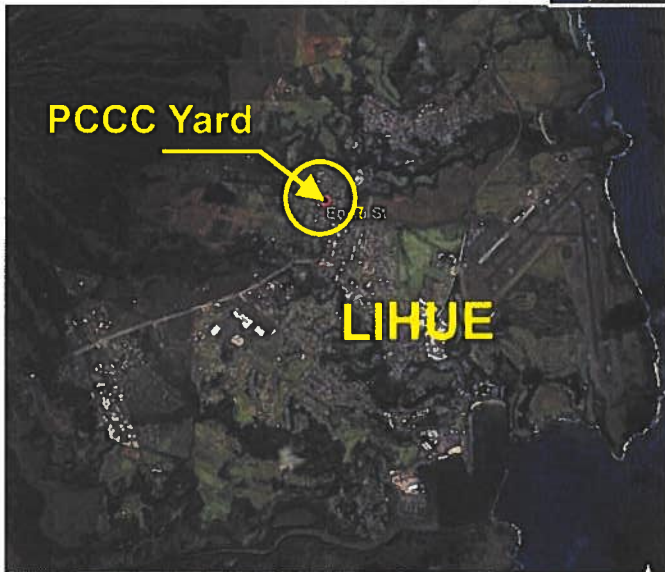
Made payable to: "CLEAN AIR SPECIAL FUND-COV"

APPENDIX A

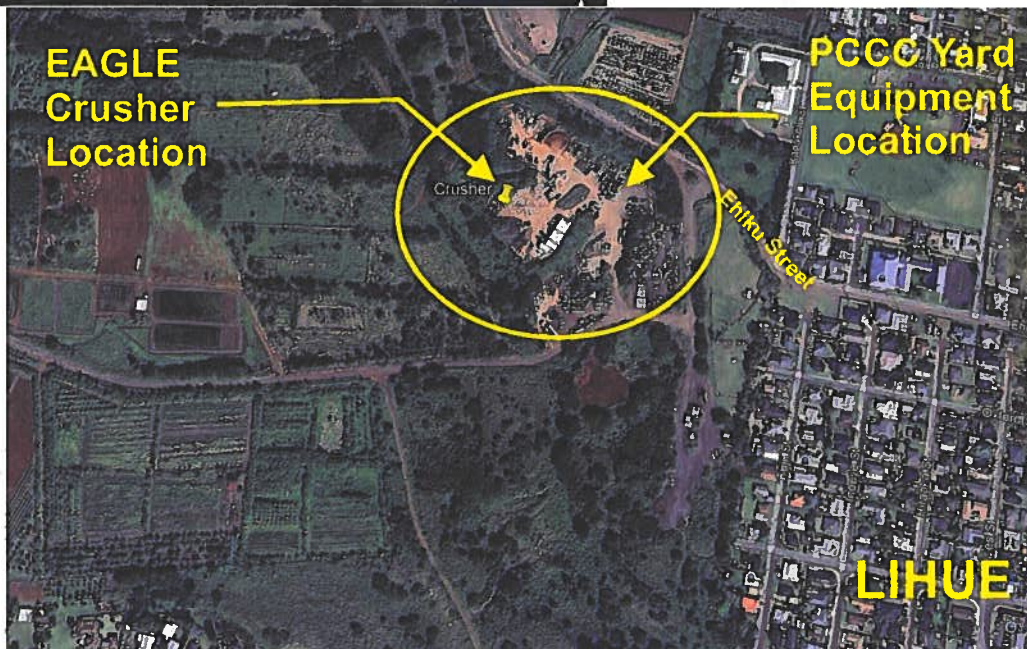
LOCATION & SITE MAPS

Pacific Concrete Cutting & Coring, Inc. (PCCC)

Initial Equipment Location:
TMK (4) 3-8-004:001
PCCC Yard, Ehiku Street,
Lihue, Kauai, HI 96766



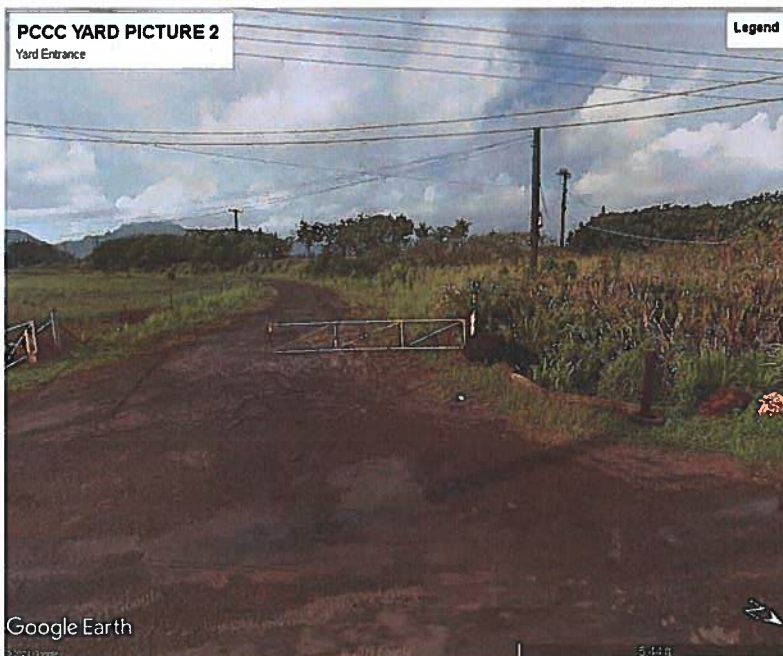
EAGLE Crusher
UTM Coordinates:
Zone 4
461,375 m East
2,431,075 m North



Pacific Concrete Cutting & Coring, Inc. (PCCC)



**View from
Ehiku Street
towards property
where PCCC yard
is located.
Area is rural
and flat.**

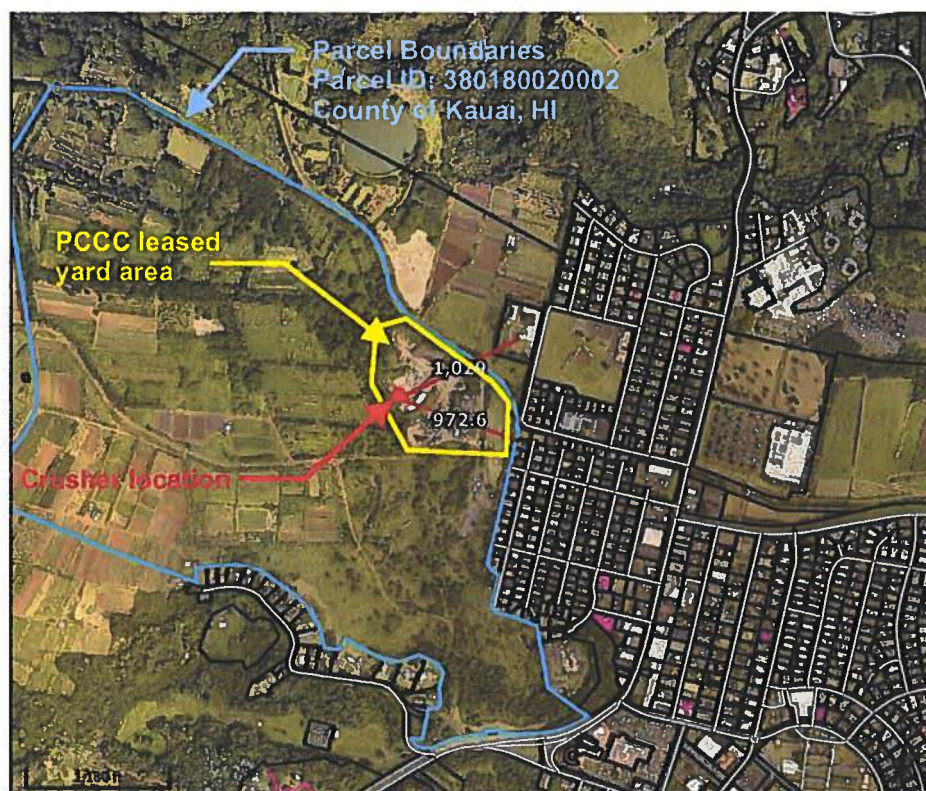


**View from
dirt road at
gated entrance
towards property
where PCCC yard
is located.
Area is rural
and flat.**

Pacific Concrete Cutting & Coring, Inc. (PCCC)



View of gated entrance to PCCC yard.



Map of parcel and leased area

APPENDIX B
Annual Emission Calculations

Annual Emission Calculations for 300 TPH EAGLE 1200-25-CV Impact Crusher**Calculation Basis:**

Maximum Processing rate : 300 TPH

Transfer Points: 4

Operating hours: 8760 hours/year

Emission Factors: AP 42 (11.19.2-2, 8/04, 13.2.4, 11/06, 13.2.2, 11/06)

Fugitive Emissions of Particulate Matter (TSP):

Activity	SCC	Lb/hr	TPY
Primary Crushing uncontrolled	3-05-020-01	0.720	3.154
Conveyor Transfer Point uncontrolled (4)	3-05-020-06	8.100	35.478
Truck unloading uncontrolled	3-05-020-32	0.030	0.131
TOTAL UNCONTROLLED		8.850	38.763
Less Control (70%)		6.195	27.134
TOTAL CONTROLLED		2.655	11.629

Storage Pile and Unpaved Roads (TSP):

Activity	SCC	Lb/hr	TPY
Storage Piles uncontrolled		8.507	37.263
Unpaved Roads uncontrolled		4.096	17.942
TOTAL UNCONTROLLED		12.603	55.205
Less Control (70%)		8.822	38.644
TOTAL CONTROLLED		3.781	16.561

Fugitive Emissions of Particulate Matter (PM10):

Activity	SCC	Lb/hr	TPY
Primary Crushing uncontrolled	3-05-020-01	0.720	3.154
Conveyor Transfer Point uncontrolled (4)	3-05-020-06	2.970	13.009
Truck unloading uncontrolled	3-05-020-32	0.030	0.131
TOTAL UNCONTROLLED		3.720	16.294
Less Control (70%)		2.604	11.406
TOTAL CONTROLLED		1.116	4.888

Storage Pile and Unpaved Roads (PM10):

Activity	SCC	Lb/hr	TPY
Storage Piles uncontrolled		4.024	17.624
Unpaved Roads uncontrolled		1.254	5.492
TOTAL UNCONTROLLED		5.278	23.116
Less Control (70%)		3.695	16.181
TOTAL CONTROLLED		1.583	6.935

Fugitive Emissions of Particulate Matter (PM2.5):

Emission calculations based on CEIDARS table PM2.5 fractions, Mineral Products, Crushing, Screening, Blasting, Loading and Unloading where PM2.5 equals 0.3 of PM10.

Activity	SCC	Lb/hr	TPY
Primary Crushing uncontrolled	3-05-020-01	0.216	0.946
Conveyor Transfer Point uncontrolled (4)	3-05-020-06	0.891	3.903
Truck unloading uncontrolled	3-05-020-32	0.009	0.039
TOTAL UNCONTROLLED		1.116	4.888
Less Control (70%)		0.781	3.422
TOTAL CONTROLLED		0.335	1.466

Storage Pile and Unpaved Roads (PM2.5):

Activity	SCC	Lb/hr	TPY
Storage Piles uncontrolled		1.207	5.287
Unpaved Roads uncontrolled		0.125	0.549
TOTAL UNCONTROLLED		1.332	5.836
Less Control (70%)		0.932	4.085
TOTAL CONTROLLED		0.400	1.751

Annual Emission Calculations for 456 HP Caterpillar C9.3B Diesel Engine**Calculation Basis:**

Maximum Fuel Consumption : 22.1 gal/hour
 Maximum Sulfur Content in Fuel : 0.0015%
 Sulfur Emissions are calculated based on Sulfur Balance Method
 Operating hours : 8760 hours/year

Manufacturer Emission Rates:

Total NOx (as NO2) : 0.19 lb/hr
 Total CO : 0.05 lb/hr
 Total HC : 0.00 lb/hr
 Total CO2 : 493 lb/hr
 Part. Matter : 0.00 lb/hr
 Part. Matter : 1.00 g/hr (=0.0022 lbs/hr)

Emission Factors: AP 42, 3.3 dated 10/96

Pollutant	Emission Rate Source	LBS/HR	TPY
NOx	Manufacturer Information	0.190	0.832
CO	Manufacturer Information	0.050	0.219
SOx	Sulfur Balance Method	0.471	2.062
PM	Manufacturer Information	0.002	0.010
PM10	Manufacturer Information	0.002	0.010
PM2.5	Manufacturer Information	0.002	0.010
CO2	Manufacturer Information	493.0	2159.340
Aldehydes	AP42, 3.3 dated 10/96	0.212	0.928
TOC	AP42, 3.3 dated 10/96	1.090	4.775
Benzene	AP42, 3.3 dated 10/96	2.83E-03	1.24E-02
Toluene	AP42, 3.3 dated 10/96	1.24E-03	5.43E-03
Xylenes	AP42, 3.3 dated 10/96	8.63E-04	3.78E-03
Propylene	AP42, 3.3 dated 10/96	7.81E-03	3.42E-02
1,3 Butadiene	AP42, 3.3 dated 10/96	1.18E-04	5.19E-04
Formaldehyde	AP42, 3.3 dated 10/96	3.57-E-03	1.57E-02
Acetaldehyde	AP42, 3.3 dated 10/96	2.32E-03	1.02E-02
Acrolein	AP42, 3.3 dated 10/96	2.80E-04	1.23E-03
Naphthalene	AP42, 3.3 dated 10/96	2.57E-04	1.12E-03
TOTAL HAP's		1.93E-02	8.45E-02
Total PAH	AP42, 3.3 dated 10/96	5.09E-04	2.23E-03
NH3	WebFIRE	0.064	0.281

Calculations of Emissions for Crushed Stone Processing Operations					
Client:	PACIFIC CONCRETE CUTTING & CORING INC.			Date:	
Facility:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER			3/5/2024	
Permit No.:			JOB#	2401015	
Annual Production Rate Calculations:			Annual Production (tpy)	Annual Production (cy/year)	
INPUT FIELDS:		hrs/year*			8760
cy/hr	0	tons/hr			300
		Transfer Points			9
			2,628,000	0	

Conversion rate "stone crushed" cy to ton = 1.4 Source: (www.enviromineinc.com/conversion_calculator.htm)

EMISSION CALCULATIONS FOR TOTAL PART. MATTER (AP42, table 11.19.2-2, 8/04)

Source	SCC	Em.Factor (lb/ton)	lbs/hour	Tons/Year
Primary Crushing	3-05-020-01	N/D	0.000	0.000
Primary Crushing contr.	3-05-020-01	N/D	0.000	0.000
Secondary Crushing	3-05-020-02	N/D	0.000	0.000
Secondary Crushing contr.	3-05-020-02	N/D	0.000	0.000
Tertiary Crushing	3-05-020-03	0.00540	1.620	7.096
Tertiary Crushing contr.	3-05-020-03	0.00120	0.360	1.577
Fines Crushing	3-05-020-05	0.03900	11.700	51.246
Fines Crushing contr.	3-05-020-05	0.00300	0.900	3.942
Screening	3-05-020-02,03	0.02500	7.500	32.850
Screening contr.	3-05-020-02,03	0.00220	0.660	2.891
Fines Screening	3-05-020-21	0.30000	90.000	394.200
Fines Screening contr.	3-05-020-21	0.00360	1.080	4.730
Conveyor Transfer Point	3-05-020-06	0.00300	0.900	3.942
Conv. Transfer Point contr.	3-05-020-06	0.00014	0.042	0.184
Wet Drilling - Unfrag.Stone	3-05-020-10	N/D	0.000	0.000
Truck unload - Fragm.Stone	3-05-020-31	N/D	0.000	0.000
Truck unload - conv.crushed	3-05-020-32	N/D	0.000	0.000

EMISSIONS IN **BOLD ONLY** ARE USED FOR EMISSION CALCULATIONS FOR THIS PLANT!

Uncontrolled Emission Calculations for multiple Transfer Points:

No of Points:	9	lbs/hr per point	0.900	Total:	8.1
No of Points:	9	tons/year per point	3.942	Total:	35.478

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:

Wind Erosion from Storage Piles (AP42, 13.2.4, 11/06):				Average Annual Windspeeds for Hawaii (AP42, 7.1-9)	
Formula: $E = k(0.0032) \times [((U/5)^{1.3}) / ((M/2)^{1.4})]$				Hilo	7.2 mph
where: E=emission factor, k=particle size multiplier(dimensionless)				Honolulu	11.4 mph
U=mean wind speed (mph), M=material moisture content				Kahului	12.8 mph
				Lihue	12.2 mph
				State Average	10.9 mbh
k (TSP)	k (PM-10)	U	M		
0.74	0.35	10.9	0.7		
AP42,13.2.4	AP42,13.2.4	AP42,7.1-9	AP42,13.2.4-1		
				Total TSP (lb/hr)	Total TSP (tpy)
Emission Factor lb/ton:					
PM-10	0.013	Ann.Prod. (tpy)			
TSP	0.028	2,628,000		8.507	37.263
TOTAL TSP CONTROLLED (-70%)FOR STORAGE PILES				2.552	11.179
PM-10 UNCONTROLLED:				17.624	tons/year

PAGE 2

EMISSION CALCULATIONS FOR TOTAL PM-10 (AP42, table 11.19.2-2, 8/04)

Source	SCC	Em.Factor (lb/ton)	lbs/hour	Tons/Year
*Primary Crushing	3-05-020-01	0.00240	0.720	3.154
*Primary Crushing contr.	3-05-020-01	0.00054	0.162	0.710
*Secondary Crushing	3-05-020-02	0.00240	0.720	3.154
*Secondary Crushing contr.	3-05-020-02	0.00054	0.162	0.710
Tertiary Crushing	3-05-020-03	0.00240	0.720	3.154
Tertiary Crushing contr.	3-05-020-03	0.00054	0.162	0.710
Fines Crushing	3-05-020-05	0.01500	4.500	19.710
Fines Crushing contr.	3-05-020-05	0.00120	0.360	1.577
Screening	3-05-020-02,03	0.00870	2.610	11.432
Screening contr.	3-05-020-02,03	0.00074	0.222	0.972
Fines Screening	3-05-020-21	0.07200	21.600	94.608
Fines Screening contr.	3-05-020-21	0.00220	0.660	2.891
Conveyor Transfer Point	3-05-020-06	0.00110	0.330	1.445
Conv. Transfer Point contr.	3-05-020-06	4.60E-05	0.014	0.060
Wet Drilling - Unfrag.Stone	3-05-020-10	8.00E-05	0.024	0.105
Truck unload - Fragn.Stone	3-05-020-31	1.60E-05	0.005	0.021
Truck unload - conv.crushed	3-05-020-32	0.00010	0.030	0.131

EMISSIONS IN **BOLD ONLY** ARE USED FOR EMISSION CALCULATIONS FOR THIS PLANT!

*Tertiary Crushing Emission Factors are used (AP42, table 11.19.2-2, Footnote n)

Uncontrolled Emission Calculations for multiple Transfer Points:				
No of Points:	9	lbs/hr per point	0.330	Total: 2.970
No of Points:	9	tons/year per point	1.445	Total: 13.009

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:					
Wind Erosion from Storage Piles (AP42, 13.2.4):				Average Annual Windspeeds for Hawaii (AP42,7.1-9) Hilo 7.2 mph Honolulu 11.4 mph Kahului 12.8 mph Lihue 12.2 mph State Average 10.9 mbh	
Formula: $E = k(0.0032) \times [((U/5)^{**1.3}) / ((M/2)^{**1.4})]$					
where: E=emission factor, k=particle size multiplier(dimensionless)					
U=mean wind speed (mph), M=material moisture content					
k (TSP)	k (PM-10)	U	M		
0.74	0.35	10.9	0.7		
AP42,13.2.4	AP42,13.2.4	AP42,7.1-9	AP42,13.2.4-1		
Emission Factor lb/ton:		Ann.Prod.		Total PM-10	Total PM-10
PM-10	0.013	(tpy)		(lb/hr)	(tpy)
TSP	0.028	2,628,000		4.024	17.624
PM-10 CONTROLLED (-70%)FOR STORAGE PILES				1.207	5.287

PAGE 3

EMISSION CALCULATIONS FOR PM2.5 (AP42, table 11.19.2-2, 8/04)

Emission calculations based on CEIDARS table PM2.5 fractions, Mineral Products, Crushing, Screening, Blasting, Loading and Unloading where PM2.5 equals 0.3 of PM10.

Source	SCC	Em.Factor (lb/ton)	lbs/hour	Tons/Year
Primary Crushing*	3-05-020-01	0.00072	0.216	0.946
Primary Crushing contr.	3-05-020-01	0.00016	0.049	0.213
Secondary Crushing*	3-05-020-02	0.00072	0.216	0.946
Secondary Crushing contr.	3-05-020-02	0.00016	0.049	0.213
Tertiary Crushing*	3-05-020-03	0.00072	0.216	0.946
Tertiary Crushing contr.	3-05-020-03	0.00016	0.049	0.213
Fines Crushing*	3-05-020-05	0.00450	1.350	5.913
Fines Crushing contr.	3-05-020-05	0.00036	0.108	0.473
Screening*	3-05-020-02,03	0.00261	0.783	3.430
Screening contr.	3-05-020-02,03	0.00022	0.067	0.292
Fines Screening*	3-05-020-21	0.02160	6.480	28.382
Fines Screening contr.*	3-05-020-21	0.00066	0.198	0.867
Conveyor Transfer Point*	3-05-020-06	0.00033	0.099	0.434
Conv. Transfer Point contr.	3-05-020-06	1.38E-05	0.004	0.018
Wet Drilling - Unfrag.Stone*	3-05-020-10	2.40E-05	0.007	0.032
Truck unload - Fragm.Stone*	3-05-020-31	4.80E-06	0.001	0.006
Truck unload - conv.crushed*	3-05-020-32	0.00003	0.009	0.039

EMISSIONS IN BOLD ONLY ARE USED FOR EMISSION CALCULATIONS FOR THIS PLANT!

Storage Piles

	Emission PM10	Emission PM2.5	
lbs/hour	4.024	1.207	(PM10 emissions x 0.3)
tons/year	17.624	5.287	(PM10 emissions x 0.3)

Un-Controlled Emission Calculations for multiple Transfer Points:

No of Points:	9	lbs/hr per point	9.90E-02	Total:	0.891
No of Points:	9	tons/year per point	4.34E-01	Total:	3.903

Calculations of PM30 (TSP) Emissions for Unpaved Roads				
Client:	PACIFIC CONCRETE CUTTING & CORING INC.			
Facility:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER			
Date:	3/5/2024	PERMIT NO.:	JOB #	2401015

Equation 1a (Industrial Site) AP-42, 13.2.2 Unpaved Roads, 11/06					
$E = k (s/12)^a (W/3)^b$					
where:					
E = size-specific emission factor (lb/VMT)					
k,a,b,c = constant (lb/VMT)					
s = surface material silt content (%)					
W = mean vehicle weight (tons)					
p = number of days with at least 0.01 inches of precipitation per year					
VMT = vehicle mile travelled					
Silt content for stone quarrying & processing plant roads (AP-42, table 13.2.2-1):					
Plant Road:		10%		Haul Road: 8.30%	
Table 13.2.2-2. Constants for industrial roads (equation 1a):					
Constant	PM-2.5	PM-10	PM-30		
k (lb/VMT)	0.15	1.5	4.9		
a	0.9	0.9	0.7		
b	0.45	0.45	0.45		
c	n/a	n/a	n/a		
d	n/a	n/a	n/a		
Ranges of source conditions for equation (AP-42, 13.2.2.-3):					
Road silt content: 1.2 - 35%			Mean vehicle weight determination:		
Mean vehicle weight: 1.5 - 290 tons			Average weight empty: 16 t		
Mean vehicle speed: 5-55 mph			Average weight full: 37 t		
Mean number of wheels: 4-7			Average vehicle weight: 26.5 t		
Surface moisture content: 0.03-20%					
Input:					
k (particle size multiplier) PM30	4.900				
s (silt content of road) (%)	3.900	*AP42, 13.2.2, Dec.2003			
W (mean vehicle weight) (tons)	26.500				
M (surface material moisture content) (%)	0.2				
S (mean vehicle speed) (mph)	10				
p (# of days with 0.01" of rain/year)*	189	PM-30		Result:	
				(lb/VMT)	
				2.867	
Total vehicle miles travelled per year:					
(Max TPH Throughput x Hours/Year / Truck Payload x Distance Travelled)					
TPH	Hours/year	Truck Load (T)	Distance (M)		VMT/year
300	8760	21	0.1		12514.3
Uncontrolled PM30 in tons per year for unpaved roads:					
					17.942
Controlled PM30 (tpy) for unpaved roads (-70%):					
					5.383
Uncontrolled PM30 in lbs/hr					
					4.096
Controlled PM30 in lbs/hr					
					1.229
* Station: (515575) LIHUE 1020, 1949 - 2000					

Calculations of PM10 Emissions for Unpaved Roads				
Client:	PACIFIC CONCRETE CUTTING & CORING INC.			
Facility:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER			
Date:	3/5/2024	PERMIT NO.:	JOB #	2401015

Equation 1a (Industrial Site) AP-42, 13.2.2 Unpaved Roads, 11/06

$$E = k (s/12)^a (W/3)^b$$

where:

E = size-specific emission factor (lb/VMT)

k,a,b,c = constant (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

p = number of days with at least 0.01 inches of precipitation per year

VMT = vehicle mile travelled

Silt content for stone quarrying & processing plant roads (AP-42,table 13.2.2-1):

Plant Road:	10%	Haul Road:	8.30%
-------------	-----	------------	-------

Table 13.2.2-2. Constants for industrial roads (equation 1a):

Constant	PM-2.5	PM-10	PM-30		
k (lb/VMT)	0.15	1.5	4.9		
a	0.9	0.9	0.7		
b	0.45	0.45	0.45		
c	n/a	n/a	n/a		
d	n/a	n/a	n/a		

Ranges of source conditions for equation (AP-42, 13.2.2.-3):

Road silt content: 1.2 - 35%

Mean vehicle weight: 1.5 - 290 tons

Mean vehicle speed: 5-55 mph

Mean number of wheels: 4-7

Surface moisture content: 0.03-20%

Mean vehicle weight determination:

Average weight empty: 16 t

Average weight full: 37 t

Average vehicle weight: 26.5 t

Input:				
k (particle size multiplier) PM-10	1.500	*AP42, 13.2.2, Dec.2003		
s (silt content of road) (%)	3.900			
W (mean vehicle weight) (tons)	26.500			
M (surface material moisture content) (%)	0.2			
S (mean vehicle speed) (mph)	10			
p (# of days with 0.01" of rain/year)*	189			
		PM-10	Result: (lb/VMT)	
			0.878	
Total vehicle miles travelled per year:				
(Max TPH Throughput x Hours/Year / Truck Payload x Distance Travelled)				
TPH	Hours/year	Truck Load (T)	Distance (M)	VMT/year
300	8760	21	0.1	12514.3
Uncontrolled PM10 in tons per year for unpaved roads:				5.492
Controlled PM10 (tpy) for unpaved roads (-70%):				1.648
Uncontrolled PM10 in lbs/hr				1.254
Controlled PM10 in lbs/hr				0.376
* Station: (515575) LIHUE 1020, 1949 - 2000				

Calculations of PM2.5 Emissions for Unpaved Roads				
Client:	PACIFIC CONCRETE CUTTING & CORING INC.			
Facility:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER			
Date:	3/5/2024	PERMIT NO.:	JOB #	2401015

Equation 1a (Industrial Site) AP-42, 13.2.2 Unpaved Roads, 11/06

$$E = k (s/12)^a (W/3)^b$$

where:

E = size-specific emission factor (lb/VMT)

k,a,b,c = constant (lb/VMT)

s = surface material silt content (%)

W = mean vehicle weight (tons)

p = number of days with at least 0.01 inches of precipitation per year

VMT = vehicle mile travelled

Silt content for stone quarrying & processing plant roads (AP-42, table 13.2.2-1):

Plant Road: 10% Haul Road: 8.30%

Table 13.2.2-2. Constants for industrial roads (equation 1a):

Constant	PM-2.5	PM-10	PM-30		
k (lb/VMT)	0.15	1.5	4.9		
a	0.9	0.9	0.7		
b	0.45	0.45	0.45		
c	n/a	n/a	n/a		
d	n/a	n/a	n/a		

Ranges of source conditions for equation (AP-42, 13.2.2-3):

Road silt content: 1.2 - 35%

Mean vehicle weight: 1.5 - 290 tons

Mean vehicle speed: 5-55 mph

Mean number of wheels: 4-7

Surface moisture content: 0.03-20%

Mean vehicle weight determination:

Average weight empty: 16 t

Average weight full: 37 t

Average vehicle weight: 26.5 t

Input:

k (particle size multiplier) PM2.5	0.150	*AP42, 13.2.2, Dec. 2003	Result: (lb/VMT)
s (silt content of road) (%)	3.900		
W (mean vehicle weight) (tons)	26.500		
M (surface material moisture content) (%)	0.2		
S (mean vehicle speed) (mph)	10		
p (# of days with 0.01" of rain/year)*	189	PM2.5	0.088

Total vehicle miles travelled per year:

(Max TPH Throughput x Hours/Year / Truck Payload x Distance Travelled)

TPH	Hours/year*	Truck Load (T)	Distance (M)	VMT/year
300	8760	21	0.1	12514.3

*Note: Hours are for calculation purposes only

Uncontrolled PM2.5 in tons per year for unpaved roads: 0.549**Controlled PM2.5 (tpy) for unpaved roads (-70%):** 0.165**Uncontrolled PM2.5 in lbs/hr** 0.125**Controlled PM2.5 in lbs/hr** 0.038

* Station: (515575) LIHUE 1020, 1949 - 2000

Calculations of Emissions for Diesel Engines up to 600 HP				
Client:	PACIFIC CONCRETE CUTTING & CORING, INC.			
Facility:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER			
Equipment:	456 HP CATERPILLAR C9.3B DIESEL ENGINE			
Date:	3/4/2024		PERMIT #	
FUEL CALCULATIONS:				
Fuel gal/hr	Hours/year	Diesel Fuel (gal/yr)	SCC 2-02-001-02	
22.10	8760	193596	SCC 2-03-001-01	
Fuel (gal/yr)	lb/gal	Diesel Fuel (lb/yr)		
193596	7.1	1374531.6		
Fuel (lb/yr)	btu/lb	Diesel Fuel (mmbtu/yr)	mmbtu/hr:	3.028363
1374531.6	19300	26528.45988	Fuel Sulfur:	0.0015%
Emission factors are based on AP42,3.3 dated 10/96				
Pollutant:	Em. Factor	Total	Total	Total
Table 3.3-1&2	(lb/mmbtu)	(mmbtu/year)	(lbs/hr)	(tpy)
NOx	please	see manufacturer	information	below
CO	please	see manufacturer	information	below
SOx	Sulfur	Balance Method	see	below
PM10	please	see manufacturer	information	below
CO2		manufacturer information	493.000	2159.340
Aldehydes	7.00E-02	26528.45988	0.212	0.928
TOC ^a	3.60E-01	26528.45988	1.090	4.775
Benzene*	9.33E-04	26528.45988	2.83E-03	1.24E-02
Toluene*	4.09E-04	26528.45988	1.24E-03	5.43E-03
Xylenes*	2.85E-04	26528.45988	8.63E-04	3.78E-03
Propylene	2.58E-03	26528.45988	7.81E-03	3.42E-02
1,3 Butadiene*	3.91E-05	26528.45988	1.18E-04	5.19E-04
Formaldehyde*	1.18E-03	26528.45988	3.57E-03	1.57E-02
Acetaldehyde*	7.67E-04	26528.45988	2.32E-03	1.02E-02
Acrolein*	9.25E-05	26528.45988	2.80E-04	1.23E-03
Naphthalene*	8.48E-05	26528.45988	2.57E-04	1.12E-03
TOTAL HAP's*			1.93E-02	8.45E-02
Total PAH	1.68E-04	26528.45988	5.09E-04	2.23E-03
^a Total TOC, includes Exhaust, Evaporative, Crankcase & Refueling				
* Hazardous air pollutants listed in the Clean Air Act.				
Calculation of NH3, PM, PM10, and PM2.5 according to WebFIRE (EPA, SCC codes				
2-02-001-02 & 2-03-001-1:				
NH3	2.90E+00	193596	0.06409	0.280714
Emission Factor for all three pollutants & both SCC codes is: 4.25E+1 lb/1000gal				
PM/PM10/PM2.5	4.25E+01	193596	0.939	4.114
Manufacturer's Information:				
Emissions	kW/h	g/hr	lb/hr	tpy
CO			0.050	0.219
Nox			0.190	0.832
PM			0.002	0.010
Sox	Sulfur	Balance Method	0.4707	2.062
Emissions in grams/sec.				
CO	0.0063			
Nox	0.0239			
PM	0.0003			
SO2	0.0593			

SO2 EMISSION CALCULATIONS BASED ON SULFUR BALANCE

CLIENT:	PACIFIC CONCRETE CUTTING & CORING INC
PLANT:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
SOURCE:	456 HP CATERPILLAR C9.3B DIESEL ENGINE

DATE:	3/4/2024	JOB #	2401015
--------------	-----------------	--------------	----------------

Where:S + O₂ -> SO₂

MW of S 32

MW of O₂ 32MW of SO₂ 64

Max. Sulfur Content in Fuel (S1) 0.0015% by weight

Max. Fuel Consumption (MF) 22.10

Max. Hours / Year (MH) 8760

Density of Diesel Fuel (WD) 7.1 lb/gal

SO2 Emissions in lb/hr:

$$[S1 (\%) \times MF (\text{gal/hr}) \times WD (\text{lb/gal})] \times 2 = \text{SO}_2 (\text{lb/hr}) \quad \boxed{0.4707} \text{ lb/hr}$$
SO2 Emissions in tons/year:

$$\text{SO}_2 (\text{lb/hr}) \times \text{MH} (\text{hrs/yr}) / 2000 (\text{lb/ton}) = \text{SO}_2 (\text{TPY}) \quad \boxed{2.062} \text{ TPY}$$
SO2 Emissions in grams / second:

$$\text{SO}_2 (\text{lb/hr}) \times 453.6 \text{ g/lb} / 3600 \text{ sec/hr} = \text{SO}_2 (\text{g/sec}) \quad \boxed{0.0593} \text{ g/sec}$$

LIHUE 1020, HAWAII

Period of Record General Climate Summary - Precipitation

Station:(515575) LIHUE 1020

From Year=1949 To Year=2000

	Precipitation											Total Snowfall		
	Mea n	High	Yea r	Low	Yea r	1 Day Max.	>= 0.01	>= 0.10	>= 0.50	>= 1.00	Mea n	Hig h	Yea r	
	in.	in.	-	in.	-	in.	dd/yyyy or yyyymmdd	# Day s	# Day s	# Day s	# Day s	in.	in.	-
January	6.70	22.2 2	195 6	1.07	199 5	11.4 3	25/1956	14	8	3	2	0.0	0.0	195 0
February	3.93	10.5 1	197 9	0.00	198 3	4.10	24/1989	13	6	2	1	0.0	0.0	195 0
March	4.70	14.9 8	195 1	0.47	199 3	8.16	01/1954	15	8	2	1	0.0	0.0	195 0
April	4.48	15.1 9	196 3	1.25	196 6	3.00	14/1963	15	9	2	1	0.0	0.0	195 0
May	3.39	11.5 6	196 5	0.62	196 8	5.46	05/1965	16	7	1	1	0.0	0.0	195 0
June	2.25	6.15	197 8	0.69	197 3	2.60	01/1989	16	6	1	0	0.0	0.0	195 0
July	2.99	10.1 4	195 4	0.96	197 9	4.36	30/1954	18	9	1	0	0.0	0.0	195 0
August	2.76	9.35	195 9	1.05	196 9	5.31	07/1959	17	8	1	0	0.0	0.0	195 0
September	2.87	8.13	198 0	0.86	197 5	3.97	17/1980	15	7	1	0	0.0	0.0	195 0
October	5.09	12.8 1	196 8	1.37	196 3	7.80	11/1966	17	9	2	1	0.0	0.0	194 9
November	6.35	17.9 8	195 5	1.02	196 3	9.59	28/1954	17	9	3	2	0.0	0.0	194 9
December	6.51	24.1 8	196 8	0.67	198 5	4.36	31/1951	15	8	3	2	0.0	0.0	194 9
Annual	52.0 2	82.5 4	196 8	29.5 4	195 3	11.4 3	19560125	189	93	23	11	0.0	0.0	195 0

PCCC Application for New Temporary Covered Source Permit

Winter	17.1 4	39.3 8	195 6	4.52	197 3	11.4 3	19560125	42	22	8	4	0.0	0.0	195 0
Spring	12.5 7	25.8 7	196 2	3.49	196 6	8.16	19540301	46	23	6	3	0.0	0.0	195 0
Summer	8.00	15.3 3	195 4	3.42	197 5	5.31	19590807	51	23	3	1	0.0	0.0	195 0
Fall	14.3 1	29.6 2	196 8	4.88	196 3	9.59	19541128	49	25	6	3	0.0	0.0	195 0

Table updated on Oct 31, 2012

For monthly and annual means, thresholds, and sums:

Months with 5 or more missing days are not considered

Years with 1 or more missing months are not considered

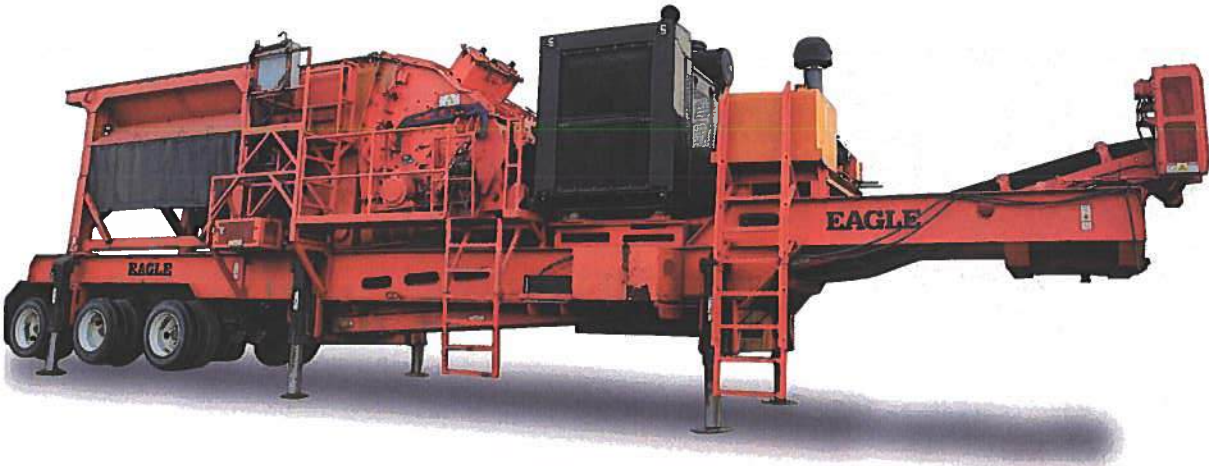
Seasons are climatological not calendar seasons

Winter = Dec., Jan., and Feb. Spring = Mar., Apr., and May

Summer = Jun., Jul., and Aug. Fall = Sep., Oct., and Nov.

APPENDIX C

EQUIPMENT INFORMATION & DATA



ULTRAMAX[®] 1200-CV

This highly portable impactor plant is one of the most durable, reliable, and versatile plants for your medium-sized jobs.

PRIMARY FEATURES

- » Easily transports in one pull. Check with your DOT.
- 1 Optional electro-magnet is available as a cross-belt or in-line installation that stays on for transport.
- » Hydraulic lift and leveling system enables quick set up and tear down by using the hydraulic run-on legs.
- 2 Totally self-contained, reliable diesel/ electric or all-electric power. You won't have to worry about hydraulic leaks and failures shutting you down.
- » Features the industry's first LIFETIME ROTOR WARRANTY on its solid-steel, three-bar, sculptured rotor—the industry's heaviest—to keep you up and crushing.*

* North America only.



ADDITIONAL FEATURES

- » Replaces dual crusher systems for a much lower initial investment and for greatly reduced maintenance, fuel and transportation costs.
- » Features standard grizzly bypass chute and available cross-belt conveyor with flop gate to allow for either removal of the material that passes through the grizzly deck for stockpiling or blending back with the crushed material.
- » Features unique two-step, 5' grizzly deck to remove fines before crushing.
- » Utilizes side-discharge conveyor (OC model) with receiving hopper and replaceable liners, optional full-length skirtboards and available, in-line electro-magnet that stays on for trailer transport.
- » Side-discharge conveyor (OC model) is available in road-portable version.
- » Includes removable electrical control panel featuring pre-wired receptacles for radial stackers.
- » Manage the feeder speed for complete control of the flow of material into the impactor with Variable Frequency Drive (VFD).
- » Includes wireless remote control for the feeder shutdown and all motor stop.

ULTRAMAX[®] 1200-CV

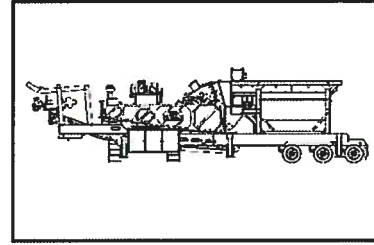
CV model is featured. The 1200-25 is also available as an open circuit (OC) model.



Solid-steel, three-bar, sculptured rotor with LIFETIME ROTOR WARRANTY, North America only.



Easy, one-pull transport. Check with your DOT.



1200-25 CV PORTABLE IMPACTOR PLANT TECHNICAL SPECIFICATIONS*

Model	
Impactor	UM-25
Operating Length	52' 0" / 15.9M
Gross Weight	96000lbs / 43500kg
Travel Length	48' 10" / 14.9M
Travel Width	11' 11" / 3.6M
Travel Height	13' 5" / 4.1M
Feed Hopper Capacity	17yd ³ / 13.0M ³
Feed Hopper Capacity (Tons)	23.0T / 20.9MT
Vibrating Feeder	18' x 45.5" / 5.5M x 1.2M
Feeder Grizzly Deck	60" long 2 step / 1524mm 2 step
On-Plant Power Supply Diesel	450HP / 335kW diesel engine and 140kW generator or
On-Plant Power Supply Electric	300HP / 224kW all-electric power
Discharge Conveyor Width	42" / 1067mm
Discharge Conveyor Height	8' 6.5" / 2600mm

ULTRAMAX[®] IMPACTOR MODEL AND SPECIFICATIONS*

Model	Diameter x Width		Width x Height		Approx. Weight (lbs / kg)	Rotor Weight (lbs / kg)	Production Capacity**
	Rotor (Inches / Millimeters)	Feed Opening (Inches / Millimeters)	Power Required (HP / kW)				
UM-25	47 x 47 / 1194 x 1194	48 x 34 / 1219 x 864	150 - 300 / 112 - 224		34000 / 15400	13000 / 5900	Varies by application.

*Design specifications subject to change without notice.

**Contact your Eagle Sales Representative with your specific application for anticipated production capacity.

UltraMax[R] Impactor Models

Crusher Type (Jaw, Cone, VSI etc.)	Overall Size	Total Weight	Feed Opening
UM-04	N/A	17,400 lbs.	27" x 32"
UM-05	N/A	20,900 lbs.	33" x 32"
UM-15	N/A	28,000 lbs.	42" x 32"
UM-25	N/A	34,000 lbs.	48" x 34"
UM-45	N/A	40,100 lbs.	56" x 35"
UM-69	N/A	61,000 lbs.	69" x 36"

Crusher Type (Jaw, Cone, VSI etc.)	Max Feed Size	Capacity (TPH)	Power
UM-04	N/A	100	60-100 HP Required
UM-05	N/A	150	75-150 HP Required
UM-15	N/A	200	150-200 HP Required
UM-25	N/A	300	150-300 HP Required
UM-45	N/A	400	300-400 HP Required
UM-69	N/A	800	400-600 HP Required

Crusher Type (Jaw, Cone, VSI etc.)	Adjustable Range of Discharge Opening	Rotor Width	Rotor Impact Circle
UM-04	N/A	26"	N/A
UM-05	N/A	33"	N/A
UM-15	N/A	41"	N/A
UM-25	N/A	47"	N/A
UM-45	N/A	56"	N/A
UM-69	N/A	68"	N/A

Footnote: Design specifications subject to change without notice. Contact your Eagle Crusher Sales Representative with your specific application for anticipated production capacity.



Engine Emissions Data			
For Emissions / Certification feedback and questions, please submit a ticket via our ERC Request Portal			
This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.			
Serial Number (Machine)			
Serial Number (Engine)	NGHD06326		
Sales Model	C9.3B		
Regulatory Build Date	19-APR-2023		
Interlock Code Progression	From Interlock 87	To Interlock 88	Software PN 6364129-00
Engine ReRated			
Engine Arrangement Number	5395436		
Certification Arrangement	3611820		
Test Spec Number	4581456		
Regulatory Status	IMO Compliant		
Regulatory Status	EPA / ARB / EU / R120 / MLIT / S. Korea Tier 5		
Labeled Model Year	2023		
EPA Family Code	PCPKL09.3NTE		
EPA Emissions Level	EPA TIER 4f		
EU Emissions Level	EU STAGE V		
EU Type Approval	24*2016/1628*2022/992EV6/D*0014		
UN R120 Type Approval	120R-NRE6V09.3NTA		
As-Shipped Flash File	6364129		
Flash File Progression	Re-rated		
CORR FL Power at RPM	No Power Available 2200 RPM		
Advertised Power	456 HP 2,000RPM		
Total Displacement	9.3 L		
Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.			
Need emission replacement label? Click here!			

PERFORMANCE DATA[EM2778]

February 7, 2024

Performance Number: EM2778

Change Level: 01

SALES MODEL:	C9.38	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	2,000
MACHINE SALES MODEL:		PEAK TORQUE SPEED (RPM):	1,400
ENGINE POWER (BHP):	458	TORQUE RISE (%):	41
PEAK TORQUE (FT-LB):	1,540.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	D-RATING	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELESC	TURBO QUANTITY:	1
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTB4088/0.84 - A/R
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2017
INJECTOR TYPE:	CR	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,955.4
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	7,349		

INDUSTRY	SUBINDUSTRY	APPLICATION
INDUSTRIAL	GENERAL INDUSTRIAL	INDUSTRIAL
INDUSTRIAL	CONSTRUCTION	INDUSTRIAL
INDUSTRIAL	MATERIAL HANDLING	INDUSTRIAL
INDUSTRIAL	MINING	INDUSTRIAL
INDUSTRIAL	AGRICULTURE	INDUSTRIAL
OIL AND GAS	WELL SERVICING	INDUSTRIAL
INDUSTRIAL	INDUSTRIAL POWER UNIT	INDUSTRIAL
OIL AND GAS	LAND PRODUCTION	INDUSTRIAL
INDUSTRIAL	FORESTRY	INDUSTRIAL

General Performance Data

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL-HR	GAL-HR
2,200	437	1,044	278	0.361	0.348	21.8	21.4
2,100	447	1,117	297	0.348	0.346	21.9	21.7
2,000	458	1,197	319	0.344	0.341	22.1	21.9
1,900	468	1,280	335	0.338	0.338	21.8	21.6
1,800	468	1,330	364	0.333	0.330	21.4	21.2
1,700	447	1,381	368	0.330	0.326	20.8	20.6
1,600	437	1,435	382	0.328	0.323	20.1	19.9
1,500	424	1,488	395	0.328	0.320	19.3	19.1
1,400	411	1,540	410	0.323	0.320	18.7	18.5
1,300	382	1,484	390	0.318	0.313	18.2	18.0
1,200	317	1,388	389	0.315	0.312	14.1	13.9
1,100	275	1,313	349	0.318	0.313	12.2	12.1
1,000	229	1,206	321	0.324	0.321	10.5	10.4
900	189	1,098	292	0.331	0.328	8.8	8.7
800	161	969	263	0.364	0.360	7.8	7.5
700	110	827	220	0.378	0.372	6.7	6.7
600	78.0	665	177	0.393	0.389	4.2	4.1

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,200	437	81.9	121.7	1,208.8	66.1	890.3	68	402.8
2,100	447	85.4	121.4	1,224.8	65.3	895.8	70	412.3
2,000	458	71.0	121.4	1,230.8	67.8	898.4	76	431.2
1,900	468	72.9	121.8	1,224.1	66.4	897.7	77	428.8
1,800	468	74.7	121.7	1,223.1	62.9	890.6	78	427.4
1,700	447	75.3	121.4	1,213.8	49.8	888.8	79	421.6
1,600	437	75.1	121.8	1,221.3	45.9	899.8	78	419.1
1,500	424	74.1	120.7	1,238.3	42.0	918.7	77	418.0
1,400	411	73.0	121.1	1,257.8	38.3	945.9	75	418.2
1,300	382	62.2	121.8	1,248.5	30.1	964.5	64	394.8

Page 1 of 8

PERFORMANCE DATA[EM2778]

February 7, 2024

TOTAL HC	GMP-HR	0.00	0.01	0.01	0.02	0.10
PART MATTER	GMP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/MR	0.19	0.04	0.01	0.01	0.02
TOTAL CO	LB/MR	0.05	0.05	0.04	0.03	0.02
TOTAL HC	LB/MR	0.00	0.01	0.01	0.00	0.01
TOTAL CO2	LB/MR	483	358	242	138	78
PART MATTER	LB/MR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EDH	%	9.1	10.8	12.1	14.0	16.1

Regulatory Information

EPA TIER 4 FINAL			2014 - —	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality U.S. (INCL CALIF)	Agency EPA	Regulation NON-ROAD	Tier/Stage TIER 4 FINAL	Max Limits - G/BSKW - HR CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

EU STAGE V		2019 - —			
GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2016/1628, ECE REGULATION NO. 68 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.					
Locality EUROPE	Agency EU	Regulation NON-ROAD	Tier/Stage STAGE V	Max Limits - G/BKW - HR CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.015	

JAPAN MLIT TIER 4F			2016 - —		
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO MLIT ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE JAPANESE NON-ROAD REGULATIONS.					
Locality JAPAN	Agency JAPAN MLIT	Regulation NON-ROAD	Tier/Stage TIER 4F	Max Limits - G/BKW - HR CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02	

SOUTH KOREA MOE TIER 4F			2016 - —	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO KOREA ARE CONSISTENT WITH THOSE DESCRIBED IN ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE KOREAN NON-ROAD REGULATIONS.				
Locality SOUTH KOREA	Agency SOUTH KOREA MOE	Regulation NON-ROAD	Tier/Stage TIER 4F	Max Limits - G/BSKW - HR CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.025

UN R228	2018 - —
UNIFORM PROVISIONS CONCERNING THE APPROVAL OF INTERNAL COMBUSTION ENGINES TO BE INSTALLED IN AGRICULTURAL AND FORESTRY TRACTORS AND IN NON-ROAD MOBILE MACHINERY, WITH REGARD TO THE MEASUREMENT OF THE NET POWER, NET TORQUE AND SPECIFIC FUEL CONSUMPTION.	

Altitude Derate Data**STANDARD****ALTITUDE CORRECTED POWER CAPABILITY (BHP)**

AMBIENT OPERATING TEMP (°F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	458	458	458	458	458	458	454	453	451	438	458
1,000	458	458	458	455	454	452	451	450	444	423	458
2,000	458	455	454	452	451	448	448	446	430	408	453
3,000	453	451	450	448	447	445	444	434	414	394	450
4,000	449	448	448	444	443	441	438	420	400	380	447
5,000	445	443	442	440	435	428	420	403	385	367	443
6,000	444	443	436	429	422	415	407	394	375	358	443
7,000	439	431	424	417	410	403	396	386	366	348	436
8,000	433	424	416	408	401	393	386	377	354	332	433
9,000	414	408	399	391	384	376	369	360	339	318	417
10,000	393	386	379	371	364	356	348	340	324	304	398
11,000	373	368	359	351	344	336	329	321	309	292	379
12,000	353	348	339	332	325	318	311	304	293	280	359
13,000	334	328	321	315	308	301	294	287	280	268	340
14,000	317	311	305	298	292	285	278	272	265	255	326
15,000	301	295	289	283	277	270	263	256	249	242	312

Page 5 of 8

APPENDIX D

NON-ROAD ENGINE CERTIFICATION

NONROAD ENGINE CERTIFICATION

(Page 1 of 3)

This document provides written notification that each engine identified below meets the qualifications of a nonroad engine.

The following are the qualifications of a nonroad engine:

1. Each engine, by itself or in or on a piece of equipment, is portable or transportable, meaning designed to be and capable of being carried or moved from one location to another. Indicia of transportability include, but are not limited to, wheels, skids, carrying handles, dolly, trailer, or platform;
2. Each engine, and any temporary replacement for the engine, will not remain at a location for more than twelve (12) consecutive months. A location is any single site at a building, structure, facility, or installation. Engines remaining at a single location on the property for more than twelve (12) months do not meet the definition of a nonroad engine. Any engine (or engines) that replaces the engine claimed to be a nonroad engine must be included in calculating the consecutive time period; and
3. Each engine is not located at a seasonal source. A seasonal source is a stationary source that remains in a single location on a permanent basis (i.e., at least two (2) years) and that operates at that single location approximately three (3) months (or more) each year.

The permittee is prohibited from circumventing or attempting to circumvent the residence time requirements specified in the qualifications above (i.e., moving the diesel engine only for the purpose of avoiding the applicability of 40 Code of Federal Regulations (CFR) Part 63, Subpart ZZZZ, and 40 CFR Part 60, Subpart IIII).

In accordance with 40 CFR § 1068.31, a nonroad engine that ceases to meet the qualifications of a nonroad engine becomes a new stationary engine. For example, if an engine is used at a single specific location for twelve (12) months or longer, it ceases to be a nonroad engine. Anyone claiming nonroad engine status and failing to meet the qualifications of a nonroad engine, is in violation of 40 CFR § 1068.31 and § 1068.101.

For Agency Use Only: Application No.: _____

NONROAD ENGINE CERTIFICATION

(Page 2 of 3)

Permit Number (if renewal or modification): NEW PERMIT

Provide the information for each diesel engine for which you are claiming nonroad engine status. If additional space is required, attach a separate piece of paper to the form to fully answer, and clearly indicate which engine's information you are answering.:

For the initial location:						
Rating	Make	Model	Engine Serial No.	Reason(s) the engine is moved around the property	Frequency the engine is moved around the property	If the engine is not moved, how long will the engine remain at the property?
456 HP	Caterpillar	C9.3B	NGH06326	The engine powers the 300TPH EAGLE Impact Crusher	Depending on jobs, 2 to 3 times per 12 consecutive months.	The only time the engine is not moved is when it is in storage.

Note that there must be a legitimate reason that requires the engine to be moved around the location in order to be considered as "not remaining at a single location on the property." **See the attached EPA determination, as an example of an engine qualifying as a nonroad engine.** If it cannot be demonstrated, for the initial location, that the engines have a legitimate reason to be moved around the property, the cover letter of the issued permit will state that the nonroad diesel engine(s) can remain at the location for a maximum of twelve (12) months. Note that the nonroad engine requirements also hold true for any future locations.

The EAGLE crusher is equipped with wheels and is transported from site to site as a trailer by a truck. The engine is securely mounted on top of that crusher trailer and is used to power the crusher. Crushing jobs require the crusher to be on-site for anywhere from a few days or weeks to a few months. The engine therefore has a legitimate reason to be moved around within a property or between properties.

NONROAD ENGINE CERTIFICATION

(Page 3 of 3)

RESPONSIBLE OFFICIAL

(as defined in

HAR §11-60.1-1)

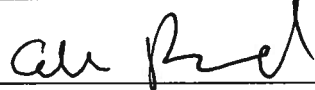
Name (Last): Brainerd (First): Eli (MI): _____
 Title: President Phone: (808) 245-7171
 Organization Name: PACIFIC CONCRETE CUTTING & CORING INC.
 Mailing Address: P.O. Box 662261
 City: Lihue State: HI Zip Code: 96766

Certification by Responsible Official (pursuant to HAR

§11-60.1-4)

I hereby certify that the diesel engines listed above are operated as nonroad engines and that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief. I further state that I will assume responsibility for the operation of the equipment in accordance with the Hawaii Administrative Rules (HAR), Title 11, Chapter 60.1, Air Pollution Control, and any permit issued thereof.

Name (Print/Type): Eli Brainerd

(Signature): 

Date: 2/24/24

APPENDIX E

**Assessment of Ambient Air Quality Impact
for
456 HP Caterpillar C9.3B Diesel Engine**

ASSESSMENT OF AMBIENT AIR QUALITY IMPACT

SCREEN MODELING

US EPA AERSCREEN 21112

FOR

COVERED SOURCE APPLICATION PCCC

300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
456 HP CATERPILLAR C9.3B DIESEL ENGINE

LOCATED AT

Ehiku Street, Lihue, HI 96766
UTM: Zone 4, 461,375m E / 2,431,075m N

DATE: March 27, 2024

MODELED BY:

CFM ENVIRONMENTAL LLC
EMAIL: fredpeyer@gmail.com
TEL: (808) 779-2948

Introduction:

As per EPA Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised (EPA 454-R-92-019) the simple screening procedures (Phase I) is applied to determine if the source poses a potential threat to air quality. The purpose of first applying a simple screening procedure is to conserve resources by eliminating from further analysis those sources that clearly will not cause or contribute to ambient concentrations in excess of short-term air quality standards or allowable concentration increments. A relatively large degree of “conservatism” is incorporated in that screening procedure to provide reasonable assurance that maximum concentrations will not be underestimated.

Summary:

Even though the screening model incorporates a large degree of “conservatism” (see above) the modeling results for the 456 HP Caterpillar diesel engine model C9.3B resulted in very low emission concentrations for most pollutants. The highest results were 44.3% of standard for 1-Hour NO_x, and 58.9% of standard for 1-Hour SO₂.

The results are based on a maximum concentration of 39.22 ug/m³ for actual emission rate of NO_x (0.024 g/s) and on 1808 ug/m³ for 1 g/s emission which was then extrapolated to the actual emissions for each pollutant. These concentrations used were located at 25 meters from the source and are used as a worst-case scenario since the actual distance to public access is approximately 30 meters.

All modeled emission concentrations are below the Ambient Air Quality Standard. Except for 1-Hour SO₂ which is 58.9% of standard, all results are less than 50% of standard.

It is therefore our opinion that the modeled source is in compliance with all applicable Ambient Air Quality Standards.

Screening Model Selection:

The EPA screening model AERSCREEN 21112, available from the EPA website, was used to determine the maximum concentrations.

Source Selection:

Modeling was performed for the 456 HP Caterpillar diesel engine model C9.3B, Serial Number NGH06326.

Background:

The source modeled is considered a 'Relatively Isolated Proposed Source'. It is expected that background is the only other significant contributor to ambient pollutant concentration in its vicinity.

Applicable background has been calculated as the three-year average of 98%tile high, 99%tile high, or 2nd High concentrations as per State of Hawaii, Annual Summary, Air Quality Data for the years 2022, 2021, and 2020.

Since there is only one Ambient Air Monitoring Station on Kauai (Niumalu) which measures source impact from the cruise ships, as a worst case scenario background emissions of Kapolei and Honolulu have been used for the modeling of the Kauai source. Actual background emissions on Kauai at the source locations are most likely lower since it is an agricultural and suburban area without much traffic and/or industry.

Air Quality Data - Background for Screen Modeling - OAHU

State of Hawaii - Annual Summary - Air Quality Data 2020, 2021, 2022

Pollutant	Avg.Period	Monitor Location	Maximum	2022	2021	2020	3-year average Background
O3	8-hour	Kapolei	2nd High	0.043 ppm	0.049 ppm	0.046 ppm	0.046 ppm
	Annual	Kapolei		0.026 ppm	0.026 ppm	0.026 ppm	0.026 ppm
Nox	1-hour	Kapolei	98th%	23.1 ppb	21.5 ppb	0.026 ppm	0.0235 ppm
	Annual	Kapolei		3 ppb	3 ppb	0.003 ppm	0.003 ppm
CO	1-hour	Honolulu	2nd High	1.1 ppm	0.9 ppm	0.9 ppm	0.966 ppm
	8-hour	Honolulu	2nd High	0.7 ppm	0.7 ppm	0.6 ppm	0.666 ppm
	Annual	Honolulu		0.1 ppm	0.5 ppm	0.3 ppm	0.3 ppm
SO2	1-hour	Kapolei	99th%	1.1 ppb	2.8 ppb	0.006 ppm	0.0033 ppm
	3-hour	Kapolei/Ncore	2nd High	0.002 ppm	0.002 ppm	0.005 ppm	0.003 ppm
	24-hour	Kapolei/Ncore	2nd High	0.001 ppm	0.002 ppm	0.003 ppm	0.002 ppm
	Annual	Kapolei		0.4 ppb	0.7 ppb	0.001 ppm	0.0007 ppm
PM10	24-hour	Kapolei	2nd High	45 µg/m3	34 µg/m3	38 µg/m3	39 µg/m3
	Annual	Kapolei		16.5 µg/m3	9.2 µg/m3	12.3 µg/m3	12.7 µg/m3
PM2.5	24-hour	Kapolei	98th%	9.3 µg/m3	6.7 µg/m3	6.9 µg/m3	7.6 µg/m3
	Annual	Kapolei		4.7 µg/m3	2.9 µg/m3	3.4 µg/m3	3.7 µg/m3

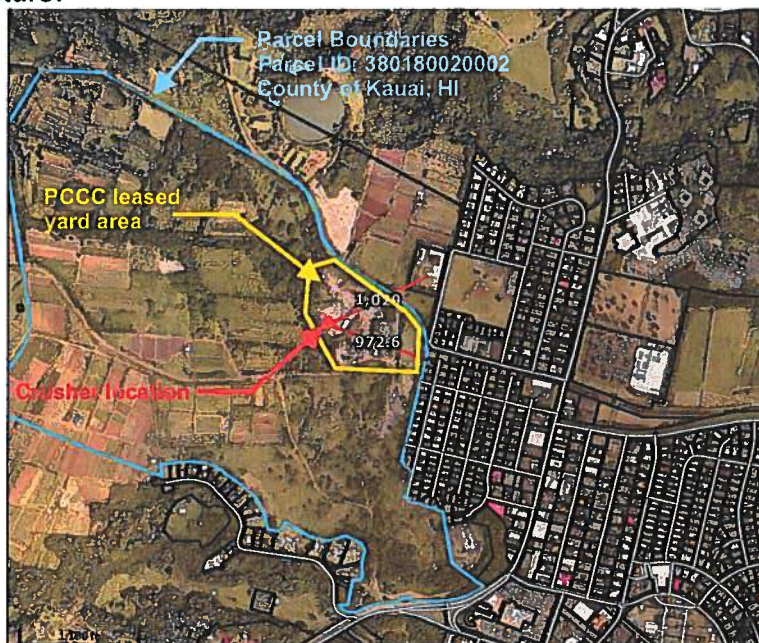
Background Pollutant Conversion ppm to ug/m3				
(as per Hawaii DOH, CAB)				
Pollutant		Enter ppm value	Conversion Factor	ug/m3 value
CO	1hr	0.966	1,145	1,106.1
CO	8hr	0.666	1,145	762.6
CO	annual	0.3	1,145	343.5
NO2	1hr	0.0235	1,880	44.2
NO2	annual	0.003	1,880	5.6
SO2	1hr	0.0033	2,610	8.6
SO2	3hr	0.003	2,610	7.8
SO2	24hr	0.002	2,610	5.2
SO2	annual	0.0007	2,610	1.8
O3	8hr	0.046	1,962	90.3
O3	annual	0.026	1,972	51.3
Pb		0	8,457	-
H2S		0	1,390	-

Source Location:

Source located at PCCC Yard, Ehiku Street, Lihue, Kauai, HI 96766, TMK (4) 3-8-004:001, UTM Coordinates Zone 4, 461,375 m East - 2,431,075 m North. The area around the yard is rural (agricultural) and flat. The access to the property is through a gated dirt road. There is a second gate restricting access to the actual yard within the property. See the following picture:



Within the yard site there are no buildings except for some storage containers which are below the source emission point. The closest buildings are single family homes at a distance of approximately 296 meters and the American Cancer Society building at 314 meters. See the following picture:



The shortest distance from the crusher to the yard property line is approximately 30 meters towards the back of the leased yard area. Public access therefore is at approximately 30 meters from the source.

Source Information:

Stack height, and stack diameter were measured on site.

STACK HEIGHT	: 14' 6" / 4.42 m
STACK DIAMETER	: 4" / 0.10 m

Exhaust volume, exhaust temperature, maximum fuel consumption, and emission rates are as per

Caterpillar Engine Emissions Data

Serial Number NGH06326

Sales Model C9.3B

Regulatory Build Date 19-APR-2023

Engine Arrangement Number 5395436

Certification Arrangement 3611820

Test Spec Number 4581456

And as per

Performance Data, Performance Number EM2778 at 2000 RPM, 456 HP, 100% Load

MAXIMUM FUEL CONSUMPTION: 22.1 gal/hr (2000 rpm / 456 hp)

MANUFACTURER EMISSION RATES:

TOTAL NOX (AS NO₂) 0.19 LB/HR

TOTAL CO 0.05 LB/HR

TOTAL HC 0.00 LB/HR (used 0.01 lb/hr for modeling)

TOTAL CO₂ 493 LB/HR

PART MATTER 0.00 LB/HR (used 0.01 lb/hr for modeling)

SO₂ (Sulfur Balance Method) 0.47 LB/HR (based on 22.1 gal/hr fuel consumption

and ULSD fuel with 0.0015% sulfur by weight)

CONVERSION OF EMISSION RATES FROM LB/HR TO G/SEC:

NO_x : 0.19 lb/hr x 453.6 g/lb = 86.184 g/hr / 3600 sec/hr = 0.024 g/sec

CO : 0.05 lb/hr x 453.6 g/lb = 22.68 g/hr / 3600 sec/hr = 0.0063 g/sec

H/C : 0.01 lb/hr x 453.6 g/lb = 4.536 g/hr / 3600 sec/hr = 0.00126 g/sec

SO₂ : 0.47 lb/hr x 453.6 g/lb = 213.192 g/hr / 3600 sec/hr = 0.05922 g/sec

PM : 0.01 lb/hr x 453.6 g/lb = 4.536 g/hr / 3600 sec/hr = 0.00126 g/sec

In-stack NO₂/NO_x ratio: 0.5

(NO₂ to No_x Ratio: Based on EPA memorandum March 1, 2011 from Tyler Fox to Regional Air Directors)

WET EXHAUST FLOW RATE : 625.6 FT³/MIN / 17.715 m³/min / 0.295 m³/sec

CALCULATED FLOW RATE : 37.56 M/SEC

EXHAUST TEMPERATURE : 889.4°F / 749.5 K

Calculation of meter/second flow rate:

Cubic meter flow per second / exhaust area square meter = meter flow per second

Where exhaust diameter = 0.1 m

Where m³/sec flow = 0.295

*0.1m diameter / 2 = 0.05 m radius

0.05 m radius square = 0.0025 m² x 3.1416 pi = 0.007854 m² area

0.295 m³/sec / 0.007854 m² = 37.56 m/sec

Modeling Emission Rate:

The emission rate for modeling was set at 1 g/sec. The modeling result was then extrapolated to the actual emission rates (see above) for the different pollutants, except for NO_x which was modeled separately with the actual emission rate (see above).

Building Downwash:

The engine is mounted on top of a crusher trailer with the following dimensions:

Height: 14 ft 6" / 4.42 m

Length: 41 ft 6" / 12.62 m

Width: 10 ft / 3.05 m

Building orientation to North: Approximately 90%

Stack Direction from Center: Approximately 90%

Stack Distance from Center: Approximately 3 meters

There are no other buildings nearby. Repairshop containers are below the exhaust level of the source.

Min. & Max. Temperatures:

Minimum and maximum temperatures were set at 294.3 K and 305.4 K

Surface Characteristics:

Albedo 0.16 (Urban, Summer), Bowen Ratio 2.0 (Urban, Summer, Average Moisture Conditions), Roughness Length 1.0 meter (Urban, Summer), based on tables 4-1, 4-2b, and 4-3, EPA User's Guide for the Aermid Meteorological Preprocessor (Aermet), EPA-454/B-03-002 November 2004.

Screening Model Results

The diesel engine is located at a minimum distance of approximately 30 m to the leased property line. The property is gated. As a worst-case scenario the highest modeled concentration at 25 m from the source has been used for calculation of the different pollutant concentrations to be compared to the Ambient Air Quality Standards.

1-Hr NOx:

The maximum 1-hour concentration of **39.22 ug/m³** at a distance of **25 meters** from the source was used for comparison to the ambient air quality standards. O₃ background was **90.3 ug/m³** and NO_x background for 1-hour was **44.2 ug/m³**.

Other pollutants:

The maximum 1-hour concentration of **1808.0 ug/m³** at a distance of **25 meters** from the source, based on an emission rate of **1 g/sec** was extrapolated to the actual emission rates for the different pollutants. The resulting concentrations were used for comparison to the ambient air quality standards. Backgrounds are averages from State of Hawaii, Annual Summary 2020, 2021, and 2022, Air Quality Data.

Results Ambient Air Quality Assessment:

Pollutant	Avg. Period	Conc.	Background	Total	Standard	% Stand.
CO	1-Hr	11.390	1106.1	1132.3	10,000	11.2
CO	8-Hr	7.973	762.6	781.0	5,000	15.4
NO _x	1-Hr	39.22	44.2	83.4	188.18	44.3
NO _x	Annual	6.509	5.6	20.6	70	17.3
SO ₂	1-Hr	5.245	107.070	115.7	196.5	58.9
SO ₂	3-Hr	4.721	96.363	104.2	1,300	8.0
SO ₂	24-Hr	2.098	42.828	48.0	365	13.2
SO ₂	Annual	1.049	21.414	23.214	80	29.0
PM ₁₀	24-Hr	2.098	0.911	39.9	150	26.6
PM ₁₀	Annual	1.049	0.456	13.2	50	26.3
PM _{2.5}	24-Hr	2.098	0.911	8.5	35	24.3
PM _{2.5}	Annual	1.049	0.456	4.2	15	27.7

It is our opinion that the source is in compliance with the Ambient Air Quality Standards.

AMBIENT AIR QUALITY ANALYSIS - 1 HOUR NOx

Client: PCCC
Plant: 300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
Source: 456 HP CATERPILLAR C9.3B DIESEL ENGINE

File # 2401015
Date: 3/26/2024

Emission Rates:

The following parameters were used when performing the AERSCREEN modeling:

Stack Parameters:

Source Type	Direction	Height (M)	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50
Building ID	Height(m)	Min.Horiz. (m)	Max.Horiz. (m)		
Eagle Crusher	4.42	3.05	12.62		

Downdraft Parameters:**Modeling Parameters:**

Note: Emissions for one stack have been doubled to represent two crematories operating simultaneously.

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple
BACKGR: O3: 8-hr Kapolei 2nd high avg 2020,2021,2022 = 90.3 ug/m3					
Nox: 1-Hr Kapolei 98th%, Avg.2020,2021,2022 = 44.2 ug/m3					
EMISSION RATES: Manufacturer Tech Sheet					

OZONE LIMITING METHOD
NO2 to NOx Ratio: 0.5

Concentr.	ug/m3	Distance (m)	Max. HR/yr
1-HR	39.220	25.0	8760
24-HR	(Convert to 1 hr = X4)		

Ambient Air Quality Analysis (all results are given in ug/m3):

Pollutant	Avg.Period	Em.Rate(g/s)	Time Factor	Concentrat.	Background	Total	Standard	% of Stand.
NOx								
OLM Method	1-HR	0.024	n/a	39.2200	44.2	83.4	188.18	44.3

Background Conversion Calculations:

General Equation: $\text{ug/m}^3 = (\text{ppb} \times 12.187 \times \text{molecular weight}) / (273.15 + ^\circ\text{C})$

Nox background: $(23.1 \text{ ppb} \times 12.187 \times 46) / (273.15 + 25) = 47.0 \text{ ug/m}^3$

O3 Background: $(47 \text{ ppb} \times 12.187 \times 48) / (273.15 + 25) = 92.215 \text{ ug/m}^3$

NO2 to Nox Ratio: Based on EPA memorandum March 1, 2011 from Tyler Fox to Regional Air Directors

http://www.epa.gov/ttn/scram/guidance/clarification/Additional_Clarifications_AppendixW_Hourly-NO2-NAAQS_FINAL_03-01-20

AMBIENT AIR QUALITY ANALYSIS

Client:	PCCC
Plant:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
Source:	456 HP CATERPILLAR C9.3B DIESEL ENGINE

File #	
Date:	3/26/2024

Emission Rates:**Stack Parameters:****Downdraft Parameters:**

The following parameters were used when performing the AERSCREEN modeling:

Source Type	Direction	Height	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50
Building ID	Height(m)	Min.Horiz.(m)	Max.Horiz.(m)		
Eagle Crusher	4.42	3.05	12.62		

Modeling Parameters:

Note: Emissions for one stack have been doubled to represent two crematories operating simultaneously.

Result of Modeling: Maximum concentration at rate of 1.0 g/sec.:
(Simple terrain results are given in 1-hr concentrations, complex terrain results are given in 24-hr concentrations).

Ambient Air Quality Analysis (all results are given in ug/m3):

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple
BACKGROUND: State of Hawaii Annual Summary Air Quality Data 2020,2021,2022 Average					
EMISSION RATES: Manufacturer Tech Sheet & Sulfur Balance Method					
Concentr.	ug/m3	Distance (m)	Max. HR/yr		
1-HR	1808.000	25.0	8760		
24-HR		(Convert to 1hr = X4)			
			Daily limitation HR/day:	24	

Pollutant	Avg.Period	Em.Rate(g/s)	Time Factor	Concentrat	Background	Total	Standard	% of Stand.
CO	1-HR	0.0063	1	11.390	1106.10	1117.5	10,000	11.2
	8-HR	0.0063	0.7	7.973	762.60	770.6	5,000	15.4
Nox 1-Hr see sep. Analysis	1-HR	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	1-HR	n/a	n/a	n/a	n/a	n/a	n/a	n/a
NOx*	Annual*	0.024	0.2	6.509	5.60	12.1	70	17.3
	Annual**	0.024	0.2	4.970	N/A	5.0	70	7.1
SO2	1-HR	0.05922	1	107.070	8.60	115.7	196.5	58.9
	3-HR	0.05922	0.9	96.363	7.80	104.2	1,300	8.0
	24-HR	0.05922	0.4	42.828	5.20	48.0	365	13.2
	Annual	0.05922	0.2	21.414	1.80	23.214	80	29.0
PM10	24-HR	0.00126	0.4	0.911	39.00	39.9	150	26.6
	Annual	0.00126	0.2	0.456	12.70	13.2	50	26.3
PM2.5	24-HR	0.00126	0.4	0.911	7.60	8.5	35	24.3
	Annual	0.00126	0.2	0.456	3.70	4.2	15	27.7
Pb	Quarter	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* Accounts for max. hours/year annual limitation and reduction of Nox to NO2: NOx reduction method (x0.75).

** Net annual concentration according to Ozone Limiting Method (O3 Background Sand Island 2009: 2ppb or 4.28 ug/m3)

Formula: (((G21/8760)*121)*C30*D30)*0.1)+((46.0055/47.9982)*4.28)

Where: 1ppb = 2.14 ug/m3

SO2 EMISSION CALCULATIONS BASED ON SULFUR BALANCE

CLIENT:	PACIFIC CONCRETE CUTTING & CORING INC	
PLANT:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER	
SOURCE:	456 HP CATERPILLAR C9.3B DIESEL ENGINE	

DATE: 3/4/2024 JOB # 2401015

Where:

S + O2 -> SO2

MW of S 32

MW of O2 32

MW of SO2 64

Max. Sulfur Content in Fuel (S1) 0.0015% by weight

Max. Fuel Consumption (MF) 22.10Max. Hours / Year (MH) 8760

Density of Diesel Fuel (WD) 7.1 lb/gal

SO2 Emissions in lb/hr:

$$[S1 (\%) \times MF (\text{gal/hr}) \times WD (\text{lb/gal})] \times 2 = \text{SO}_2 (\text{lb/hr}) \quad \boxed{0.4707} \text{ lb/hr}$$
SO2 Emissions in tons/year:

$$\text{SO}_2 (\text{lb/hr}) \times \text{MH (hrs/yr)} / 2000 (\text{lb/ton}) = \text{SO}_2 (\text{TPY}) \quad \boxed{2.062} \text{ TPY}$$
SO2 Emissions in grams / second:

$$\text{SO}_2 (\text{lb/hr}) \times 453.6 \text{ g/lb} / 3600 \text{ sec/hr} = \text{SO}_2 (\text{g/sec}) \quad \boxed{0.0593} \text{ g/sec}$$

AERSCREEN 21112 / AERMOD 23132

03/25/24

14:46:38

TITLE: 1st run NOx 1hr PCCC

***** STACK PARAMETERS

SOURCE EMISSION RATE:	0.0240 g/s	0.190 lb/hr
STACK HEIGHT:	4.42 meters	14.50 feet
STACK INNER DIAMETER:	0.100 meters	3.94 inches
PLUME EXIT TEMPERATURE:	749.5 K	889.4 Deg F
PLUME EXIT VELOCITY:	37.560 m/s	123.23 ft/s
STACK AIR FLOW RATE:	625 ACFM	
RURAL OR URBAN:	RURAL	

INITIAL PROBE DISTANCE =	5000. meters	16404. feet
--------------------------	--------------	-------------

NOx TO NO2 CHEMISTRY	OLM
NO2/NOx IN-STACK RATIO:	0.50000
OZONE BACKGROUND CONCENTRATION:	0.90300E+02 UG/M3

***** BUILDING DOWNWASH PARAMETERS

BUILDING HEIGHT:	4.4 meters	14.5 feet
MAX BUILDING DIMENSION:	12.6 meters	41.4 feet
MIN BUILDING DIMENSION:	3.0 meters	10.0 feet
BUILDING ORIENTATION TO NORTH:	90. degrees	
STACK DIRECTION FROM CENTER:	90. degrees	
STACK DISTANCE FROM CENTER:	3.0 meters	9.8 feet

***** FLOW SECTOR ANALYSIS

25 meter receptor spacing: 1. meters - 5000. meters

FLOW SECTOR	BUILD WIDTH	BUILD LENGTH			MAX 1-HR XBADJ YBADJ	DIST CONC	TEMPORAL (m) PERIOD
10	12.96	5.20	-3.12	2.95	36.56	1.0	ANN
20	12.90	7.19	-4.62	2.82	21.08	25.0	ANN
30	12.45	8.96	-5.98	2.60	21.45	1.0	ANN
40	11.62	10.46	-7.16	2.30	23.73	1.0	ANN
50	10.44	11.63	-8.12	1.93	27.19	1.0	ANN
60	8.94	12.46	-8.83	1.50	31.20	1.0	ANN
70	7.17	12.91	-9.27	1.03	37.48	1.0	ANN
80	5.19	12.96	-9.43	0.52	46.14	1.0	ANN
90*	3.06	12.62	-9.31	0.00	73.51	1.0	ANN
100	5.20	12.96	-9.43	-0.52	46.09	1.0	ANN
110	7.19	12.90	-9.27	-1.03	37.37	1.0	ANN
120	8.96	12.45	-8.82	-1.50	31.15	1.0	ANN
130	10.46	11.62	-8.11	-1.93	27.15	1.0	ANN
140	11.63	10.44	-7.15	-2.30	23.67	1.0	ANN
150	12.46	8.94	-5.97	-2.60	21.39	1.0	ANN
160	12.91	7.17	-4.61	-2.82	21.09	25.0	ANN
170	12.96	5.19	-3.11	-2.95	36.55	1.0	ANN
180	12.62	3.06	-1.53	-3.00	71.90	1.0	ANN
190	12.96	5.20	-2.08	-2.95	39.96	1.0	ANN
200	12.90	7.19	-2.57	-2.82	28.18	25.0	ANN
210	12.45	8.96	-2.98	-2.60	31.70	1.0	ANN
220	11.62	10.46	-3.30	-2.30	36.55	1.0	ANN
230	10.44	11.63	-3.52	-1.93	41.14	1.0	ANN
240	8.94	12.46	-3.63	-1.50	48.69	1.0	ANN
250	7.17	12.91	-3.63	-1.03	53.67	1.0	ANN
260	5.19	12.96	-3.53	-0.52	59.93	1.0	ANN
270	3.06	12.62	-3.31	0.00	51.47	1.0	ANN
280	5.20	12.96	-3.52	0.52	59.77	1.0	ANN
290	7.19	12.90	-3.63	1.03	53.64	1.0	ANN
300	8.96	12.45	-3.63	1.50	48.65	1.0	ANN
310	10.46	11.62	-3.51	1.93	41.03	1.0	ANN
320	11.63	10.44	-3.29	2.30	36.51	1.0	ANN
330	12.46	8.94	-2.97	2.60	31.62	1.0	ANN
340	12.91	7.17	-2.56	2.82	28.17	25.0	ANN
350	12.96	5.19	-2.07	2.95	39.93	1.0	ANN
360	12.62	3.06	-1.53	3.00	71.90	1.0	ANN

* = worst case flow sector

***** MAKEMET METEOROLOGY PARAMETERS *****

MIN/MAX TEMPERATURE: 294.3 / 305.4 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: USER ENTERED

ALBEDO: 0.16

BOWEN RATIO: 2.00

ROUGHNESS LENGTH: 1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADJUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM IMPACT

YR MO DY JDY HR

-- -- -- -- --

10 04 25 25 01

H0 U* W* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF
WS

-64.00 1.732 -9.000 0.020 -999.4000. 7338.9 1.000 2.00 0.16 10.00

HT REF TA HT

10.0 294.3 2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 5.3 m/s

STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 4.4 meters

ESTIMATED FINAL PLUME RISE (non-downwash): 0.3 meters

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 4.7 meters

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY IMPACT

YR MO DY JDY HR

10 04 25 25 01

H0 U* W* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF
WS

-64.00 1.732 -9.000 0.020 -999.4000. 7338.9 1.000 2.00 0.16 10.00

HT REF TA HT

10.0 294.3 2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 5.3 m/s
STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 4.4 meters
ESTIMATED FINAL PLUME RISE (non-downwash): 0.3 meters
ESTIMATED FINAL PLUME HEIGHT (non-downwash): 4.7 meters

***** AERSCREEN AUTOMATED DISTANCES

OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

MAXIMUM		MAXIMUM	
DIST	1-HR CONC	DIST	1-HR CONC
(m)	(ug/m3)	(m)	(ug/m3)
1.00	73.51	2525.00	0.7462
25.00	39.22	2550.00	0.7391
50.00	26.65	2575.00	0.7320
75.00	23.24	2600.00	0.7249
100.00	19.07	2625.00	0.7180
125.00	14.85	2650.00	0.7112
150.00	11.29	2675.00	0.7045
175.00	8.372	2700.00	0.6979
200.00	6.232	2725.00	0.6914
225.00	5.153	2750.00	0.6849
250.00	4.273	2775.00	0.6786
275.00	3.673	2800.00	0.6723
300.00	3.317	2825.00	0.6662
325.00	3.128	2850.00	0.6601

PCCC Application for New Temporary Covered Source Permit

350.00	3.010	2875.00	0.6541
375.00	2.877	2900.00	0.6483
400.00	2.778	2925.00	0.6424
425.00	2.694	2950.00	0.6367
450.00	2.615	2975.00	0.6311
475.00	2.538	3000.00	0.6255
500.00	2.462	3025.00	0.6200
525.00	2.387	3050.00	0.6146
550.00	2.312	3075.00	0.6093
575.00	2.239	3100.00	0.6040
600.00	2.169	3125.00	0.5988
625.00	2.100	3150.00	0.5937
650.00	2.035	3175.00	0.5886
675.00	1.974	3200.00	0.5836
700.00	1.915	3225.00	0.5787
725.00	1.858	3250.00	0.5739
750.00	1.803	3275.00	0.5691
775.00	1.750	3300.00	0.5644
800.00	1.700	3325.00	0.5597
825.00	1.665	3350.00	0.5551
850.00	1.647	3375.00	0.5506
875.00	1.629	3400.00	0.5461
900.00	1.610	3425.00	0.5417
925.00	1.590	3450.00	0.5373
950.00	1.570	3475.00	0.5330
975.00	1.550	3500.00	0.5288
1000.00	1.529	3525.00	0.5246
1025.00	1.509	3550.00	0.5204
1050.00	1.488	3575.00	0.5164
1075.00	1.468	3600.00	0.5124
1100.00	1.447	3625.00	0.5085
1125.00	1.427	3650.00	0.5046
1150.00	1.407	3675.00	0.5008
1175.00	1.387	3700.00	0.4970
1200.00	1.367	3725.00	0.4932
1225.00	1.348	3750.00	0.4895
1250.00	1.329	3775.00	0.4859
1275.00	1.310	3800.00	0.4823
1300.00	1.291	3825.00	0.4787
1325.00	1.273	3850.00	0.4752
1350.00	1.255	3875.00	0.4717
1375.00	1.238	3900.00	0.4682
1400.00	1.221	3925.00	0.4648
1425.00	1.205	3950.00	0.4615
1450.00	1.189	3975.00	0.4582
1475.00	1.173	4000.00	0.4549

PCCC Application for New Temporary Covered Source Permit

1500.00	1.159	4025.00	0.4516
1525.00	1.145	4050.00	0.4484
1550.00	1.132	4075.00	0.4453
1575.00	1.118	4100.00	0.4421
1600.00	1.105	4125.00	0.4390
1625.00	1.092	4150.00	0.4360
1650.00	1.080	4175.00	0.4329
1675.00	1.068	4200.00	0.4299
1700.00	1.056	4225.00	0.4270
1725.00	1.044	4250.00	0.4241
1750.00	1.032	4275.00	0.4212
1775.00	1.021	4300.00	0.4183
1800.00	1.010	4325.00	0.4155
1825.00	0.9986	4350.00	0.4127
1850.00	0.9876	4375.00	0.4099
1875.00	0.9768	4400.00	0.4072
1900.00	0.9661	4425.00	0.4045
1925.00	0.9556	4450.00	0.4018
1950.00	0.9452	4475.00	0.3991
1975.00	0.9350	4500.00	0.3965
2000.00	0.9249	4525.00	0.3939
2025.00	0.9150	4550.00	0.3913
2050.00	0.9053	4575.00	0.3888
2075.00	0.8957	4600.00	0.3863
2100.00	0.8862	4625.00	0.3838
2125.00	0.8769	4650.00	0.3814
2150.00	0.8677	4675.00	0.3789
2175.00	0.8587	4700.00	0.3765
2200.00	0.8498	4725.00	0.3741
2225.00	0.8411	4750.00	0.3718
2250.00	0.8324	4775.00	0.3694
2275.00	0.8240	4800.00	0.3671
2300.00	0.8156	4825.00	0.3648
2325.00	0.8074	4850.00	0.3626
2350.00	0.7993	4875.00	0.3603
2375.00	0.7914	4900.00	0.3581
2400.00	0.7835	4925.00	0.3559
2425.00	0.7758	4950.00	0.3538
2450.00	0.7683	4975.00	0.3516
2475.00	0.7608	5000.00	0.3495
2500.00	0.7534		

 ***** AERSCREEN MAXIMUM IMPACT SUMMARY

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	89.97	89.97	80.98	53.98	8.997

DISTANCE FROM SOURCE 4.00 meters directed toward 90 degrees

IMPACT AT THE
 AMBIENT BOUNDARY 73.51 73.51 66.15 44.10 7.351

DISTANCE FROM SOURCE 1.00 meters directed toward 90 degrees

AERSCREEN 21112 / AERMOD 23132

03/25/24

15:39:51

TITLE: 1st run All Pollutants PCCC

***** STACK PARAMETERS *****

SOURCE EMISSION RATE: 1.0000 g/s 7.937 lb/hr
 STACK HEIGHT: 4.42 meters 14.50 feet
 STACK INNER DIAMETER: 0.100 meters 3.94 inches
 PLUME EXIT TEMPERATURE: 749.5 K 889.4 Deg F
 PLUME EXIT VELOCITY: 37.560 m/s 123.23 ft/s
 STACK AIR FLOW RATE: 625 ACFM
 RURAL OR URBAN: RURAL

INITIAL PROBE DISTANCE = 5000. meters 16404. feet

***** BUILDING DOWNWASH PARAMETERS *****

BUILDING HEIGHT: 4.4 meters 14.4 feet
 MAX BUILDING DIMENSION: 12.6 meters 41.3 feet
 MIN BUILDING DIMENSION: 3.0 meters 9.8 feet
 BUILDING ORIENTATION TO NORTH: 90. degrees
 STACK DIRECTION FROM CENTER: 90. degrees
 STACK DISTANCE FROM CENTER: 3.0 meters 9.8 feet

***** FLOW SECTOR ANALYSIS *****

25 meter receptor spacing: 1. meters - 5000. meters

FLOW SECTOR	BUILD WIDTH	BUILD LENGTH	MAX 1-HR XBADJ	DIST YBADJ	TEMPORAL CONC	(m) PERIOD
----------------	----------------	-----------------	-------------------	---------------	------------------	---------------

10	12.93	5.14	-3.09	2.95	1715.	1.0	ANN
20	12.87	7.13	-4.59	2.82	980.9	25.0	ANN
30	12.41	8.90	-5.95	2.60	986.0	1.0	ANN
40	11.58	10.40	-7.13	2.30	1094.	1.0	ANN
50	10.40	11.58	-8.09	1.93	1256.	1.0	ANN
60	8.90	12.41	-8.80	1.50	1432.	1.0	ANN
70	7.13	12.87	-9.25	1.03	1732.	1.0	ANN
80	5.14	12.93	-9.42	0.52	2132.	1.0	ANN
90*	3.00	12.60	-9.30	0.00	3403.	1.0	ANN
100	5.14	12.93	-9.42	-0.52	2132.	1.0	ANN
110	7.13	12.87	-9.25	-1.03	1732.	1.0	ANN
120	8.90	12.41	-8.80	-1.50	1432.	1.0	ANN
130	10.40	11.58	-8.09	-1.93	1256.	1.0	ANN
140	11.58	10.40	-7.13	-2.30	1094.	1.0	ANN
150	12.41	8.90	-5.95	-2.60	986.0	1.0	ANN
160	12.87	7.13	-4.59	-2.82	980.9	25.0	ANN
170	12.93	5.14	-3.09	-2.95	1715.	1.0	ANN
180	12.60	3.00	-1.50	-3.00	3180.	1.0	ANN
190	12.93	5.14	-2.05	-2.95	1867.	1.0	ANN
200	12.87	7.13	-2.54	-2.82	1305.	25.0	ANN
210	12.41	8.90	-2.95	-2.60	1493.	1.0	ANN
220	11.58	10.40	-3.27	-2.30	1692.	1.0	ANN
230	10.40	11.58	-3.49	-1.93	1906.	1.0	ANN
240	8.90	12.41	-3.61	-1.50	2261.	1.0	ANN
250	7.13	12.87	-3.61	-1.03	2493.	1.0	ANN
260	5.14	12.93	-3.51	-0.52	2780.	1.0	ANN
270	3.00	12.60	-3.30	0.00	2372.	1.0	ANN
280	5.14	12.93	-3.51	0.52	2780.	1.0	ANN
290	7.13	12.87	-3.61	1.03	2493.	1.0	ANN
300	8.90	12.41	-3.61	1.50	2261.	1.0	ANN
310	10.40	11.58	-3.49	1.93	1906.	1.0	ANN
320	11.58	10.40	-3.27	2.30	1692.	1.0	ANN
330	12.41	8.90	-2.95	2.60	1493.	1.0	ANN
340	12.87	7.13	-2.54	2.82	1305.	25.0	ANN
350	12.93	5.14	-2.05	2.95	1867.	1.0	ANN
360	12.60	3.00	-1.50	3.00	3180.	1.0	ANN

* = worst case flow sector

***** MAKEMET METEOROLOGY PARAMETERS *****

MIN/MAX TEMPERATURE: 294.3 / 305.4 (K)

MINIMUM WIND SPEED: 0.5 m/s

ANEMOMETER HEIGHT: 10.000 meters

SURFACE CHARACTERISTICS INPUT: USER ENTERED

ALBEDO: 0.16

BOWEN RATIO: 2.00

ROUGHNESS LENGTH: 1.000 (meters)

SURFACE FRICTION VELOCITY (U*) NOT ADJUSTED

METEOROLOGY CONDITIONS USED TO PREDICT OVERALL MAXIMUM
IMPACT

YR MO DY JDY HR

10 04 25 25 01

H0 U* W* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF
WS

-64.00 1.732 -9.000 0.020 -999.4000. 7338.9 1.000 2.00 0.16 10.00

HT REF TA HT

10.0 294.3 2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 5.3 m/s

STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 4.4 meters

ESTIMATED FINAL PLUME RISE (non-downwash): 0.3 meters

ESTIMATED FINAL PLUME HEIGHT (non-downwash): 4.7 meters

METEOROLOGY CONDITIONS USED TO PREDICT AMBIENT BOUNDARY
IMPACT

YR MO DY JDY HR

10 04 25 25 01

H0 U* W* DT/DZ ZICNV ZIMCH M-O LEN Z0 BOWEN ALBEDO REF
WS

-64.00 1.732 -9.000 0.020 -999.4000. 7338.9 1.000 2.00 0.16 10.00

HT REF TA HT

10.0 294.3 2.0

WIND SPEED AT STACK HEIGHT (non-downwash): 5.3 m/s
STACK-TIP DOWNWASH ADJUSTED STACK HEIGHT: 4.4 meters
ESTIMATED FINAL PLUME RISE (non-downwash): 0.3 meters
ESTIMATED FINAL PLUME HEIGHT (non-downwash): 4.7 meters

***** AERSCREEN AUTOMATED DISTANCES

OVERALL MAXIMUM CONCENTRATIONS BY DISTANCE

MAXIMUM		MAXIMUM	
DIST	1-HR CONC	DIST	1-HR CONC
(m)	(ug/m3)	(m)	(ug/m3)
1.00	3403.	2525.00	34.55
25.00	1808.	2550.00	34.22
50.00	1198.	2575.00	33.89
75.00	1070.	2600.00	33.56
100.00	877.5	2625.00	33.24
125.00	683.2	2650.00	32.93
150.00	518.6	2675.00	32.62
175.00	384.2	2700.00	32.31
200.00	285.2	2725.00	32.01
225.00	235.7	2750.00	31.71
250.00	195.6	2775.00	31.42
275.00	168.4	2800.00	31.13
300.00	152.5	2825.00	30.84
325.00	144.2	2850.00	30.56
350.00	139.0	2875.00	30.28
375.00	133.0	2900.00	30.01
400.00	128.5	2925.00	29.74
425.00	124.7	2950.00	29.48
450.00	121.1	2975.00	29.22

PCCC Application for New Temporary Covered Source Permit

475.00	117.5	3000.00	28.96
500.00	114.0	3025.00	28.70
525.00	110.5	3050.00	28.45
550.00	107.0	3075.00	28.21
575.00	103.7	3100.00	27.96
600.00	100.4	3125.00	27.72
625.00	97.23	3150.00	27.48
650.00	94.23	3175.00	27.25
675.00	91.39	3200.00	27.02
700.00	88.65	3225.00	26.79
725.00	86.01	3250.00	26.57
750.00	83.47	3275.00	26.35
775.00	81.04	3300.00	26.13
800.00	78.69	3325.00	25.91
825.00	77.09	3350.00	25.70
850.00	76.26	3375.00	25.49
875.00	75.40	3400.00	25.28
900.00	74.52	3425.00	25.08
925.00	73.61	3450.00	24.88
950.00	72.68	3475.00	24.68
975.00	71.74	3500.00	24.48
1000.00	70.80	3525.00	24.29
1025.00	69.85	3550.00	24.09
1050.00	68.90	3575.00	23.91
1075.00	67.95	3600.00	23.72
1100.00	67.01	3625.00	23.54
1125.00	66.07	3650.00	23.36
1150.00	65.14	3675.00	23.18
1175.00	64.22	3700.00	23.01
1200.00	63.31	3725.00	22.83
1225.00	62.41	3750.00	22.66
1250.00	61.52	3775.00	22.49
1275.00	60.64	3800.00	22.33
1300.00	59.78	3825.00	22.16
1325.00	58.93	3850.00	22.00
1350.00	58.11	3875.00	21.84
1375.00	57.32	3900.00	21.68
1400.00	56.55	3925.00	21.52
1425.00	55.78	3950.00	21.36
1450.00	55.03	3975.00	21.21
1475.00	54.29	4000.00	21.06
1500.00	53.64	4025.00	20.91
1525.00	53.01	4050.00	20.76
1550.00	52.38	4075.00	20.61
1575.00	51.77	4100.00	20.47
1600.00	51.16	4125.00	20.33

PCCC Application for New Temporary Covered Source Permit

1625.00	50.57	4150.00	20.18
1650.00	49.99	4175.00	20.04
1675.00	49.43	4200.00	19.90
1700.00	48.88	4225.00	19.77
1725.00	48.34	4250.00	19.63
1750.00	47.80	4275.00	19.50
1775.00	47.27	4300.00	19.37
1800.00	46.75	4325.00	19.23
1825.00	46.23	4350.00	19.10
1850.00	45.72	4375.00	18.98
1875.00	45.22	4400.00	18.85
1900.00	44.73	4425.00	18.72
1925.00	44.24	4450.00	18.60
1950.00	43.76	4475.00	18.48
1975.00	43.29	4500.00	18.36
2000.00	42.82	4525.00	18.24
2025.00	42.36	4550.00	18.12
2050.00	41.91	4575.00	18.00
2075.00	41.47	4600.00	17.88
2100.00	41.03	4625.00	17.77
2125.00	40.60	4650.00	17.66
2150.00	40.17	4675.00	17.54
2175.00	39.75	4700.00	17.43
2200.00	39.34	4725.00	17.32
2225.00	38.94	4750.00	17.21
2250.00	38.54	4775.00	17.10
2275.00	38.15	4800.00	17.00
2300.00	37.76	4825.00	16.89
2325.00	37.38	4850.00	16.79
2350.00	37.01	4875.00	16.68
2375.00	36.64	4900.00	16.58
2400.00	36.28	4925.00	16.48
2425.00	35.92	4950.00	16.38
2450.00	35.57	4975.00	16.28
2475.00	35.22	5000.00	16.18
2500.00	34.88		

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
FLAT TERRAIN	4163.	4163.	3747.	2498.	416.3

DISTANCE FROM SOURCE 4.00 meters directed toward 90 degrees

IMPACT AT THE
AMBIENT BOUNDARY 3403. 3403. 3063. 2042. 340.3

DISTANCE FROM SOURCE 1.00 meters directed toward 90 degrees

	CATERPILLAR INC.	EXECUTIVE ORDER U-R-001-0662 New Off-Road Compression-Ignition Engines Page 1 of 1
---	-------------------------	--

Pursuant to the authority vested in California Air Resources Board by Sections 43013, 43018, 43101, 43102, 43104 and 43105 of the Health and Safety Code; and

Pursuant to the authority vested in the undersigned by Sections 39515 and 39516 of the Health and Safety Code and Executive Order G-19-095;

IT IS ORDERED AND RESOLVED: That the following compression-ignition engines and emission control systems produced by the manufacturer are certified as described below for use in off-road equipment. Production engines shall be in all material respects the same as those for which certification is granted.

MODEL YEAR	ENGINE FAMILY	DISPLACEMENT (liters)	FUEL TYPE	USEFUL LIFE (hours)
2023	PCPXL09.3NTF	9.3	Diesel	8000
SPECIAL FEATURES & EMISSION CONTROL SYSTEMS			TYPICAL EQUIPMENT APPLICATION	
Electronic Direct Injection, Turbocharger, Charge Air Cooler, Diesel Oxidation Catalyst, Engine Control Module, Periodic Trap Oxidizer, Selective Catalytic Reduction-Urea, Ammonia Oxidation Catalyst			Loader, Tractor, Compressor, Excavator, Commercial Equipment	

The engine models and codes are attached.

The following are the exhaust certification standards (STD), or family emission limit(s) (FEL) as applicable, and certification levels (CERT) for non-methane hydrocarbon (NMHC), oxides of nitrogen (NOx), or non-methane hydrocarbon plus oxides of nitrogen (NMHC+NOx), carbon monoxide (CO), and particulate matter (PM) in grams per kilowatt-hour (g/kW-hr), and the opacity-of-smoke certification standards and certification levels in percent (%) during acceleration (Accel), lugging (Lug), and the peak value from either mode (Peak) for this engine family (Title 13, California Code of Regulations, (13 CCR) Section 2423):

RATED POWER CLASS	EMISSION STANDARD CATEGORY		EXHAUST (g/kw-hr)					OPACITY (%)		
			NMHC	NOx	NMHC+NOx	CO	PM	ACCEL	LUG	PEAK
130 ≤ kW ≤ 560	Tier 4 Final	STD	0.19	0.40	N/A	3.5	0.02	N/A	N/A	N/A
		FEL	--	--		--	0.01	--	--	--
		CERT	0.04	0.19	--	0.2	0.01	--	--	--

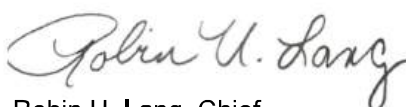
BE IT FURTHER RESOLVED: That the family emission limit(s) (FEL) is an emission level declared by the manufacturer for use in any averaging, banking and trading program and in lieu of an emission standard for certification. It serves as the applicable emission standard for determining compliance of any engine within this engine family under 13 CCR Sections 2423 and 2427.

BE IT FURTHER RESOLVED: That for the listed engine models, the manufacturer has submitted the information and materials to demonstrate certification compliance with 13 CCR Section 2424 (emission control labels), and 13 CCR Sections 2425 and 2426 (emission control system warranty).

Engines certified under this Executive Order must conform to all applicable California emission regulations.

This Executive Order is only granted to the engine family and model-year listed above. Engines in this family that are produced for any other model-year are not covered by this Executive Order.

Executed on this 12th day of September 2022.



Robin U. Lang, Chief
Emissions Certification and Compliance Division

Model	Code	Trim	Config	Displacement	Displacement - Units	Peak Power	Peak Power - Units	Peak Power - Speed (rpm)	Fueling	Peak Power - Units	Peak Torque - Speed (rpm)	Peak Torque - Fuel	Peak Torque - Units	Peak Torque - Speed (rpm)	Peak Torque - Fuel	Peak Torque - Units	Peak Torque - Fuel	GHG	Special	Notes
C9.3B	Cert Test 1	NA	I6	9.28	Liters	456		2000	160	lb/hr	1400	1536	lb-ft	1400	135	lb/hr	N/A	N/A	N/A	N/A
C9.3B	Cert Test 2	NA	I6	9.28	Liters	408		1500	137	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
C9.3B	01	NA	I6	9.28	Liters	335		2200	121	lb/hr	1400	1130	lb-ft	1400	97	lb/hr	N/A	N/A	N/A	N/A
1706J	1A	NA	I6	9.28	Liters	335		2200	121	lb/hr	1400	1130	lb-ft	1400	97	lb/hr	N/A	N/A	N/A	N/A
C9.3B	02	NA	I6	9.28	Liters	375		2200	134	lb/hr	1400	1265	lb-ft	1400	108	lb/hr	N/A	N/A	N/A	N/A
1706J	2A	NA	I6	9.28	Liters	375		2200	134	lb/hr	1400	1265	lb-ft	1400	108	lb/hr	N/A	N/A	N/A	N/A
C9.3B	03	NA	I6	9.28	Liters	416		2200	150	lb/hr	1400	1401	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
1706J	3A	NA	I6	9.28	Liters	416		2200	150	lb/hr	1400	1401	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
C9.3B	04	NA	I6	9.28	Liters	456		2000	160	lb/hr	1400	1536	lb-ft	1400	135	lb/hr	N/A	N/A	N/A	N/A
1706J	4A	NA	I6	9.28	Liters	456		2000	160	lb/hr	1400	1536	lb-ft	1400	135	lb/hr	N/A	N/A	N/A	N/A
C9.3B	05	NA	I6	9.28	Liters	314		1800	104	lb/hr	1300	1154	lb-ft	1300	93	lb/hr	N/A	N/A	N/A	N/A
C9.3B	06	NA	I6	9.28	Liters	221		2200	84	lb/hr	1200	1100	lb-ft	1200	83	lb/hr	N/A	N/A	N/A	N/A
C9.3B	6A	NA	I6	9.28	Liters	221		2200	84	lb/hr	1200	1100	lb-ft	1200	83	lb/hr	N/A	N/A	N/A	N/A
C9.3B	07	NA	I6	9.28	Liters	274		2200	95	lb/hr	1100	1263	lb-ft	1100	86	lb/hr	N/A	N/A	N/A	N/A
C9.3B	08	NA	I6	9.28	Liters	314		1800	106	lb/hr	1300	1154	lb-ft	1300	95	lb/hr	N/A	N/A	N/A	N/A
C9.3B	09	NA	I6	9.28	Liters	408		1500	137	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
1706J	9A	NA	I6	9.28	Liters	408		1500	137	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
C9.3B	10	NA	I6	9.28	Liters	456		1800	157	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
1706J	10A	NA	I6	9.28	Liters	456		1800	157	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
C9.3B	11	NA	I6	9.28	Liters	343		1500	114	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
1706J	11A	NA	I6	9.28	Liters	343		1500	114	lb/hr	NA	NA	lb-ft	NA	NA	lb/hr	N/A	N/A	N/A	N/A
C9.3B	12	NA	I6	9.28	Liters	314		1800	106	lb/hr	1300	1154	lb-ft	1300	95	lb/hr	N/A	N/A	N/A	N/A
C9.3B	13	NA	I6	9.28	Liters	416		2200	150	lb/hr	1400	1401	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
1706J	13A	NA	I6	9.28	Liters	416		2200	150	lb/hr	1400	1401	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
C9.3B	14	NA	I6	9.28	Liters	416		2200	150	lb/hr	1400	1401	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
C9.3B	15	NA	I6	9.28	Liters	294		2200	105	lb/hr	1200	1314	lb-ft	1200	99	lb/hr	N/A	N/A	N/A	N/A
C9.3B	15A	NA	I6	9.28	Liters	294		2200	105	lb/hr	1200	1314	lb-ft	1200	99	lb/hr	N/A	N/A	N/A	N/A
C9.3B	16	NA	I6	9.28	Liters	296		2200	106	lb/hr	1200	1375	lb-ft	1200	104	lb/hr	N/A	N/A	N/A	N/A
C9.3B	16A	NA	I6	9.28	Liters	296		2200	106	lb/hr	1200	1375	lb-ft	1200	104	lb/hr	N/A	N/A	N/A	N/A
C9.3B	17	NA	I6	9.28	Liters	347		1900	118	lb/hr	1400	1171	lb-ft	1400	102	lb/hr	N/A	N/A	N/A	N/A
C9.3B	18	NA	I6	9.28	Liters	294		2200	105	lb/hr	1200	1314	lb-ft	1200	99	lb/hr	N/A	N/A	N/A	N/A
C9.3B	19	NA	I6	9.28	Liters	296		2200	106	lb/hr	1200	1375	lb-ft	1200	104	lb/hr	N/A	N/A	N/A	N/A
C9.3B	20	NA	I6	9.28	Liters	414		1800	139	lb/hr	1400	1396	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
C9.3B	21	NA	I6	9.28	Liters	414		1800	139	lb/hr	1400	1396	lb-ft	1400	121	lb/hr	N/A	N/A	N/A	N/A
C9.3B	22	NA	I6	9.28	Liters	294		2200	105	lb/hr	1200	1314	lb-ft	1200	99	lb/hr	N/A	N/A	N/A	N/A



[EXTERNAL] Final Modeling AAQ Assessment

From Fred Peyer <fredpeyer@gmail.com>

Date Wed 10/9/2024 7:37 AM

To Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>; Julie Simonton <julie@pcccchawaii.com>

 1 attachment (6 MB)

Final PCCC AAQ Assessment.pdf;

Aloha Ukris and Julie,

attached is the final AAQ Assessment for PCCC done according to the last email from Ukris. The actual modeling files will be mailed to the DOH CAB. I added some screen shots from the modeling (there were four (4) modeling runs, one each for NOx and other Pollutants for 30m distance to fence line and 70 m distance to fence line), showing input and output screens for the 1-Hr NOx 30 m modeling run. I also included the revised SO2 calculation and the PCCC letter confirming the two yard locations.

As far as I am concerned, this AAQ Assessment answers all the questions put forward by the DOH CAB.

Mahalo

Fred

cc: Julie

PS: Ukris, please let me know once the permit application is in review so I can follow up.

--

Fred Peyer

CFM Environmental LLC

Tel: (808) 779-2948



[EXTERNAL] Re: Revised/Updated Ambient Air Quality Impact Assessment Report (0907-01, PCCC)

From Fred Peyer <fredpeyer@gmail.com>
Date Wed 10/2/2024 8:03 AM
To Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Cc Julie Simonton <julie@pccchawaii.com>

Aloha Ukris and Julie,
I will be leaving next Tuesday and plan on having the revised modeling finished before that, hopefully by this Friday or Saturday.
Mahalo
Fred

On Wed, Oct 2, 2024 at 9:37 AM Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov> wrote:

Good morning Fred,

I would like to complete my draft review and permit for PCCC soon, so my office can do internal review, public notice, and EPA review afterward. Since you are on a long trip, may I ask when can the air model will be rerun and the revised assessment be submitted with the my recommendations in the below email?

Thank you for your hard work, Fred.

Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch
Hawai'i State Department of Health | Ka 'Oihana Olakino
2827 Waimano Home Road, #130 | Pearl City, HI 96782
Office: (808) 586-4200
[Clean Air Branch \(hawaii.gov\)](https://www.hawaii.gov/clean-air/)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Monday, September 30, 2024 1:16 PM
To: Fred Peyer <fredpeyer@gmail.com>
Cc: Julie Simonton <julie@pccchawaii.com>
Subject: Re: Revised/Updated Ambient Air Quality Impact Assessment Report (0907-01, PCCC)

Hi Fred,

Please also update and use the Primary Annual PM2.5 National Ambient Air Quality Standard of 9 ug/m3, instead of the 15 ug/m3, in the assessment.

Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch

Hawai'i State Department of Health | Ka 'Oihana Olakino

2827 Waimano Home Road, #130 | Pearl City, HI 96782

Office: (808) 586-4200

[Clean Air Branch \(hawaii.gov\)](#)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

Sent: Monday, September 30, 2024 9:42 AM

To: Fred Peyer <fredpeyer@gmail.com>

Cc: Julie Simonton <julie@pccchawaii.com>

Subject: Re: Revised/Updated Ambient Air Quality Impact Assessment Report (0907-01, PCCC)

Hi Fred,

Can you respond to this email and provide the parameters for your (1) receptor grid and (2) meteorological data used in your model?

Please show how the ozone background was determined to be 90.3 ug/m3.

Please also include these parameters in the revised assessment discussion section of the report.

Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch

Hawai'i State Department of Health | Ka 'Oihana Olakino

2827 Waimano Home Road, #130 | Pearl City, HI 96782

Office: (808) 586-4200

[Clean Air Branch \(hawaii.gov\)](#)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

Sent: Friday, September 27, 2024 11:34 AM

To: Fred Peyer <fredpeyer@gmail.com>
Cc: Julie Simonton <julie@pccchawaii.com>
Subject: RE: Revised/Updated Ambient Air Quality Impact Assessment Report (0907-01, PCCC)

Aloha Fred,

I just recently have some time to work on the ambient air quality impact assessment on my side and reviewing your air model and results. I think it is smart of you to use 0.01 lbs/hr conservatively for PM since the manufacturer performance test data showed 0.00 lb/hr PM, instead of AP-42 emission factors. For your revised/updated assessment, please re-run the model and use 0.000015 for sulfur content (i.e., 0.0015%) for SO₂, diesel heating value of 137,000 Btu/gal (AP-42, Appendix A), show clearly how the terrain data was incorporated in the assessment report, and remove/update the notes on crematories. Please submit the revised/updated assessment and AERSCREEN files to the Clean Air Branch office. Thank you for your hard work.

Thank you,

Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch

Hawai'i State Department of Health | Ka 'Oihana Olakino

2827 Waimano Home Road, #130 | Pearl City, HI 96782

Office: (808) 586-4200

[Clean Air Branch \(hawaii.gov\)](https://www.hawaii.gov/clean-air-branch/)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Tuesday, September 17, 2024 8:03 AM
To: Fred Peyer <fredpeyer@gmail.com>; Julie Simonton <julie@pccchawaii.com>
Subject: RE: Revised and additional modeling for PCCC new permit application

Aloha Fred & Julie,

Thank you for emailing the assessment. If this is the final assessment, please send the assessment to the Clean Air Branch office by mail as usual.

May I request a confirmation from PCCC that the proposed portable 300 TPH Eagle impact crusher (serial no. 32094) will only be stored at the two (2) locations at the PCCC base yard? Please identify the two (2) storage locations on a map and indicate why other areas in the base yard will not be used for storage locations.

Thank you,

Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch

Hawai'i State Department of Health | Ka 'Oihana Olakino

2827 Waimano Home Road, #130 | Pearl City, HI 96782

Office: (808) 586-4200

[Clean Air Branch \(hawaii.gov\)](https://hawaii.gov/clean-air-branch/)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Fred Peyer <fredpeyer@gmail.com>

Sent: Tuesday, September 17, 2024 7:26 AM

To: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>; Julie Simonton <julie@pccchawaii.com>

Subject: [EXTERNAL] Revised and additional modeling for PCCC new permit application

Aloha Ukris and Julie,

attached is the assessment of the ambient air quality impact for the proposed source using Lakes software Aerscreen modeling for two (2) potential yard locations with elevation maps.

All pollutants have been found to be below the ambient air quality standards and the source therefore passes these standards.

The modeling files will follow in a separate email.

Please let me know if you have any questions.

Best regards,

Fred

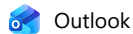
--

Fred Peyer
CFM Environmental LLC

Tel: (808) 779-2948

--

Fred Peyer
CFM Environmental LLC
Tel: (808) 779-2948



Outlook

[EXTERNAL] RE: Revised and additional modeling for PCCC new permit application

From Julie Simonton <julie@pccchawaii.com>

Date Tue 9/24/2024 11:08 AM

To Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>; Fred Peyer <fredpeyer@gmail.com>



From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

Sent: Tuesday, September 24, 2024 10:16 AM

To: Julie Simonton <julie@pccchawaii.com>; Fred Peyer <fredpeyer@gmail.com>

Subject: RE: Revised and additional modeling for PCCC new permit application

Aloha Julie,

I'm working on the ambient air quality assessment on my side. May I request some ground level pictures of what appears to be some shades or structures at PCCC's base yard please?



Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch
Hawai'i State Department of Health | Ka 'Oihana Olakino
2827 Waimano Home Road, #130 | Pearl City, HI 96782
Office: (808) 586-4200
[Clean Air Branch \(hawaii.gov\)](mailto:ukris.wongse-ont@doh.hawaii.gov)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Friday, September 20, 2024 10:19 AM
To: Julie Simonton <julie@pccchawaii.com>; Fred Peyer <fredpeyer@gmail.com>
Subject: RE: Revised and additional modeling for PCCC new permit application

Hi Julie,

Thank you. Hope you have a nice weekend also!

Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch
Hawai'i State Department of Health | Ka 'Oihana Olakino
2827 Waimano Home Road, #130 | Pearl City, HI 96782
Office: (808) 586-4200
[Clean Air Branch \(hawaii.gov\)](#)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Julie Simonton <julie@pccchawaii.com>
Sent: Friday, September 20, 2024 9:35 AM
To: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>; Fred Peyer <fredpeyer@gmail.com>
Subject: [EXTERNAL] RE: Revised and additional modeling for PCCC new permit application

Ukris-

I confirmed with our operators that those are the two locations the crusher would operate. Since we have other operations in our baseyard, this is the location that has been designated for crusher activities.

I will put this letter in the mail to you today.

Thank you and have a great weekend,

Julie Simonton, P.E.
Vice President
Pacific Concrete Cutting & Coring, Inc.
PO Box 662261
Lihue, HI 96766
Tel: 808-245-7171

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Tuesday, September 17, 2024 8:03 AM
To: Fred Peyer <fredpeyer@gmail.com>; Julie Simonton <julie@pccchawaii.com>
Subject: RE: Revised and additional modeling for PCCC new permit application

Aloha Fred & Julie,

Thank you for emailing the assessment. If this is the final assessment, please send the assessment to the Clean Air Branch office by mail as usual.

May I request a confirmation from PCCC that the proposed portable 300 TPH Eagle impact crusher (serial no. 32094) will only be stored at the two (2) locations at the PCCC base yard? Please identify the two (2) storage locations on a map and indicate why other areas in the base yard will not be used for storage locations.

Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch
Hawai'i State Department of Health | Ka 'Oihana Olakino
2827 Waimano Home Road, #130 | Pearl City, HI 96782
Office: (808) 586-4200
[Clean Air Branch \(hawaii.gov\)](#)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Fred Peyer <fredpeyer@gmail.com>
Sent: Tuesday, September 17, 2024 7:26 AM
To: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>; Julie Simonton <julie@pccchawaii.com>
Subject: [EXTERNAL] Revised and additional modeling for PCCC new permit application

Aloha Ukris and Julie,
attached is the assessment of the ambient air quality impact for the proposed source using Lakes software Aerscreen modeling for two (2) potential yard locations with elevation maps.
All pollutants have been found to be below the ambient air quality standards and the source therefore passes these standards.
The modeling files will follow in a separate email.
Please let me know if you have any questions.
Best regards,
Fred

--

Fred Peyer
CFM Environmental LLC
Tel: (808) 779-2948



[EXTERNAL] Re: Water Spray System?

From Julie Simonton <julie@pccchawaii.com>
Date Mon 6/10/2024 1:45 PM
To Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

I apologize for missing your original email. I confirmed with our mechanic that the crusher is equipped with a water spray system.

Get [Outlook for iOS](#)

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Monday, June 10, 2024 4:42:37 PM
To: Julie Simonton <julie@pccchawaii.com>
Subject: Re: Water Spray System?

Hi Julie,

May I follow-up on whether the new Eagle impact crusher is equipped with water spray system please? I'm working on the emission calculations and need this information. Please indicate how water will be used to control dust emissions if the crusher is not equipped with water spray system.

Thank you!
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch
Hawaii'i State Department of Health | Ka 'Oihana Olakino
2827 Waimano Home Road, #130 | Pearl City, HI 96782
Office: (808) 586-4200
[Clean Air Branch \(hawaii.gov\)](#)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawaii Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>
Sent: Thursday, June 6, 2024 10:05 AM
To: Julie Simonton <julie@pccchawaii.com>
Subject: Water Spray System?

Hi Julie,

Thank you again for the pictures of the equipment! I'm working on the emission calculations right now, and may I confirm whether the new Eagle impact crusher is equipped with water spray system? If not, please indicate how water will be used to control dust emissions.

Thank you,
Ukris

Ukris Wongse-ont

Engineer | Clean Air Branch

Hawai'i State Department of Health | Ka 'Oihana Olakino

2827 Waimano Home Road, #130 | Pearl City, HI 96782

Office: (808) 586-4200

[Clean Air Branch \(hawaii.gov\)](https://hawaii.gov/clean-air-branch/)

CONFIDENTIALITY NOTICE: This mail message (and attachments) is for the sole use of the intended recipient(s). It may contain confidential and/or privileged information. It might also be protected from disclosure under the Hawai'i Uniform Information Practice Act (UIPA) or other laws and regulations. Review, use, disclosure, or distribution by unintended recipients is prohibited. If you are not the intended recipient, please contact the sender immediately in a separate e-mail and destroy the original message and any copies.

From: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

Sent: Tuesday, June 4, 2024 12:47 PM

To: Julie Simonton <julie@pccchawaii.com>

Subject: RE: engine information on new crusher

Thank you, Julie! Appreciated!

Ukris

From: Julie Simonton <julie@pccchawaii.com>

Sent: Tuesday, June 4, 2024 12:39 PM

To: Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

Subject: [EXTERNAL] FW: engine information on new crusher

Here is all the engine information. I am working on getting the pictures. I have requested from our mechanic.

From: Julie Simonton

Sent: Wednesday, February 7, 2024 8:06 AM

To: Fred Peyer <fredpeyer@gmail.com>

Subject: FW: engine information on new crusher

Engine serial #: Cat C9.3B emission information for serial number NGH06326 attached.

Is this everything you need?

Julie

From: Scott Evans <sevens@eaglecrusher.com>

Sent: Wednesday, February 7, 2024 6:51 AM

To: Julie Simonton <julie@pccchawaii.com>

Cc: Bill Compton <bcompton@eaglecrusher.com>

Subject: Fwd: Information on our crusher

Good morning Julie,

Please see the attached information per your request.

Also, please note that the engine isn't registered for warranty yet. You will need to go online to register it to start the warranty. We do not initiate that ahead of time because from that point is when the warranty period starts.

Please contact me with any questions.

Sincerely,

Scott



[EXTERNAL] FW: engine information on new crusher

From Julie Simonton <julie@pccchawaii.com>

Date Tue 6/4/2024 12:42 PM

To Wongse-Ont, Ukris <ukris.wongse-ont@doh.hawaii.gov>

 4 attachments (974 KB)

NGH06326 Performance Data.pdf; NGH06326 Emissions.pdf; CARB Caterpillar_U-R-001-0662_PCPXL09.3NTF_signed_16717099941336736022712472221101 (2).pdf; EPA Cert_PCPXL09.3NTF-033_16717090531053525876171757435814 (2).pdf;

Here is all the engine information. I am working on getting the pictures. I have requested from our mechanic.

From: Julie Simonton

Sent: Wednesday, February 7, 2024 8:06 AM

To: Fred Peyer <fredpeyer@gmail.com>

Subject: FW: engine information on new crusher

Engine serial #: Cat C9.3B emission information for serial number NGH06326 attached.

Is this everything you need?

Julie

From: Scott Evans <sevans@eaglecrusher.com>

Sent: Wednesday, February 7, 2024 6:51 AM

To: Julie Simonton <julie@pccchawaii.com>

Cc: Bill Compton <bcompton@eaglecrusher.com>

Subject: Fwd: Information on our crusher

Good morning Julie,

Please see the attached information per your request.

Also, please note that the engine isn't registered for warranty yet. You will need to go online to register it to start the warranty. We do not initiate that ahead of time because from that point is when the warranty period starts.

Please contact me with any questions.

Sincerely,

Scott

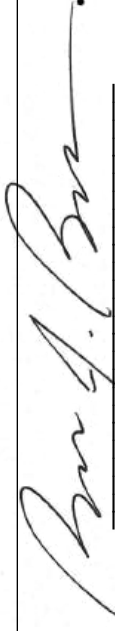


UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
2023 MODEL YEAR
CERTIFICATE OF CONFORMITY
WITH THE CLEAN AIR ACT

OFFICE OF TRANSPORTATION
AND AIR QUALITY
ANN ARBOR, MICHIGAN 48105

Certificate Issued To: Caterpillar Inc.
(U.S. Manufacturer or Importer)
Certificate Number: PCPXL09.3NTE-033

Effective Date:
09/16/2022
Expiration Date:
12/31/2023


Byron J. Bunker, Division Director
Compliance Division

Issue Date:
09/16/2022
Revision Date:
N/A

Model Year: 2023

Manufacturer Type: Original Engine Manufacturer
Engine Family: PCPXL09.3NTE

Mobile/Stationary Indicator: Both
Emissions Power Category: 130<=kW<=560
Fuel Type: Diesel
After Treatment Devices: Diesel Oxidation Catalyst, PTOX-DPF-Active, Ammonia Slip Catalyst, Selective Catalytic Reduction
Non-after Treatment Devices: Electronic Control, Engine Design Modification
FELs: PM 0.01 g/kW-hr

Pursuant to Section 111 and Section 213 of the Clean Air Act (42 U.S.C. sections 7411 and 7547) and 40 CFR Parts 60 and 1039, and subject to the terms and conditions prescribed in those provisions, this certificate of conformity is hereby issued with respect to the test engines which have been found to conform to applicable requirements and which represent the following engines, by engine family, more fully described in the documentation required by 40 CFR Parts 60 and 1039 and produced in the stated model year.

This certificate of conformity covers only those new compression-ignition engines which conform in all material respects to the design specifications that applied to those engines described in the documentation required by 40 CFR Parts 60 and 1039 and which are produced during the model year stated on this certificate of the said manufacturer, as defined in 40 CFR Parts 60 and 1039.

It is a term of this certificate that the manufacturer shall consent to all inspections described in 40 CFR 1068 and authorized in a warrant or court order. Failure to comply with the requirements of such a warrant or court order may lead to revocation or suspension of this certificate for reasons specified in 40 CFR Parts 60 and 1039. It is also a term of this certificate that this certificate may be revoked or suspended or rendered void *ab initio* for other reasons specified in 40 CFR Parts 60 and 1039.

This certificate does not cover engines sold, offered for sale, or introduced, or delivered for introduction, into commerce in the U.S. prior to the effective date of the certificate.

This certificate of conformity is conditional upon compliance of said manufacturer with the averaging, banking and trading provisions of 40 CFR Part 1039, Subpart H. Failure to comply with these provisions may render this certificate void *ab initio*.

FINAL ASSESSMENT OF AMBIENT AIR QUALITY IMPACT
(THIS ASSESSMENT SUPERCEDES ANY PREVIOUSLY SUBMITTED
ASSESSMENT(S))

SCREEN MODELING

MODEL: AERSCREEN VIEW FROM LAKES SOFTWAREUS
BASED ON EPA AERSCREEN 21112

Two Yard locations with terrain modeling
as requested by the DOH, Clean Air Branch

FOR

COVERED SOURCE APPLICATION PCCC

300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
456 HP CATERPILLAR C9.3B DIESEL ENGINE

LOCATED AT

Ehiku Street Yard, Lihue, HI 96766

Potential Location 1: UTM: Zone 4, 461,375m E / 2,431,075m N

Potential Location 2: UTM: Zone 4, 461,406m E / 2,431,095m N

DATE: October 4, 2024

MODELED BY:

CFM ENVIRONMENTAL LLC
EMAIL: fredpeyer@gmail.com
TEL: (808) 779-2948

Introduction:

As per EPA Screening Procedures for Estimating the Air Quality Impact of Stationary Sources Revised (EPA 454-R-92-019) the simple screening procedures (Phase I) is applied to determine if the source poses a potential threat to air quality. The purpose of first applying a simple screening procedure is to conserve resources by eliminating from further analysis those sources that clearly will not cause or contribute to ambient concentrations in excess of short-term air quality standards or allowable concentration increments. A relatively large degree of “conservatism” is incorporated in that screening procedure to provide reasonable assurance that maximum concentrations will not be underestimated.

This assessment has been conducted following the Department of Health, Clean Air Branch (DOH, CAB) email request for several changes to the previous assessment.

Summary:

Four modeling runs have been completed using the latest Aerscreen View program from Lakes Software based on EPA Aerscreen 21112:

- Modeling all pollutants with 30 m distance to fenceline (yard location 1)
- Modeling all pollutants with 70 m distance to fenceline (yard location 2)
- Modeling NOx 1hr with 30 m distance to fenceline (yard location 1)
- Modeling NOx 1hr with 70 m distance to fenceline (yard location 2)

Terrain modeling was done with imported Kauai-ne and Kauai-se WGS84 1 deg. DEM maps downloaded from WebGIS.com.

All modeled pollutants were found to be below the ambient air quality standards.

It is therefore our opinion that the modeled source is in compliance with all applicable Ambient Air Quality Standards.

Screening Model Selection:

Modeling was performed using the Aerscreen View program from Lakes Software based on EPA Aerscreen 21112.

Source Selection:

Modeling was performed for the 456 HP Caterpillar diesel engine model C9.3B, Serial Number NGH06326.

Background:

The source modeled is considered a ‘Relatively Isolated Proposed Source’. It is expected that background is the only other significant contributor to ambient pollutant concentration in its vicinity.

Applicable background has been calculated as the three-year average of 98%tile high, 99%tile high, or 2nd High concentrations as per State of Hawaii, Annual Summary, Air Quality Data for the years 2022, 2021, and 2020.

Since there is only one Ambient Air Monitoring Station on Kauai (Niumalu) which measures source impact from the cruise ships, as a worst case scenario background emissions of Kapolei and Honolulu have been used for the modeling of the Kauai source. Actual background emissions on Kauai at the source locations are most likely lower since it is an agricultural and suburban area without much traffic and/or industry.

Air Quality Data - Background for Screen Modeling - OAHU

State of Hawaii - Annual Summary - Air Quality Data 2020, 2021, 2022

Pollutant	Avg.Period	Monitor Location	Maximum	2022	2021	2020	3-year average Background
O3	8-hour	Kapolei	2nd High	0.043 ppm	0.049 ppm	0.046 ppm	0.046 ppm
	Annual	Kapolei		0.026 ppm	0.026 ppm	0.026 ppm	0.026 ppm
Nox	1-hour	Kapolei	98th%	23.1 ppb	21.5 ppb	0.026 ppm	0.0235 ppm
	Annual	Kapolei		3 ppb	3 ppb	0.003 ppm	0.003 ppm
CO	1-hour	Honolulu	2nd High	1.1 ppm	0.9 ppm	0.9 ppm	0.966 ppm
	8-hour	Honolulu	2nd High	0.7 ppm	0.7 ppm	0.6 ppm	0.666 ppm
	Annual	Honolulu		0.1 ppm	0.5 ppm	0.3 ppm	0.3 ppm
SO2	1-hour	Kapolei	99th%	1.1 ppb	2.8 ppb	0.006 ppm	0.0033 ppm
	3-hour	Kapolei/Ncore	2nd High	0.002 ppm	0.002 ppm	0.005 ppm	0.003 ppm
	24-hour	Kapolei/Ncore	2nd High	0.001 ppm	0.002 ppm	0.003 ppm	0.002 ppm
	Annual	Kapolei		0.4 ppb	0.7 ppb	0.001 ppm	0.0007 ppm
PM10	24-hour	Kapolei	2nd High	45 µg/m3	34 µg/m3	38 µg/m3	39 µg/m3
	Annual	Kapolei		16.5 µg/m3	9.2 µg/m3	12.3 µg/m3	12.7 µg/m3
PM2.5	24-hour	Kapolei	98th%	9.3 µg/m3	6.7 µg/m3	6.9 µg/m3	7.6 µg/m3
	Annual	Kapolei		4.7 µg/m3	2.9 µg/m3	3.4 µg/m3	3.7 µg/m3

Background Pollutant Conversion ppm to ug/m3

(as per Hawaii DOH, CAB)

Pollutant		Enter ppm value	Conversion Factor	ug/m3 value
CO	1hr	0.966	1,145	1,106.1
CO	8hr	0.666	1,145	762.6
CO	annual	0.3	1,145	343.5
NO2	1hr	0.0235	1,880	44.2
NO2	annual	0.003	1,880	5.6
SO2	1hr	0.0033	2,610	8.6
SO2	3hr	0.003	2,610	7.8
SO2	24hr	0.002	2,610	5.2
SO2	annual	0.0007	2,610	1.8
O3	8hr	0.046	1,962	90.3
O3	annual	0.026	1,972	51.3
Pb		0	8,457	-
H2S		0	1,390	-

Source Location:

Source located at PCCC Yard, Ehiku Street, Lihue, Kauai, HI 96766, TMK (4) 3-8-004:001.

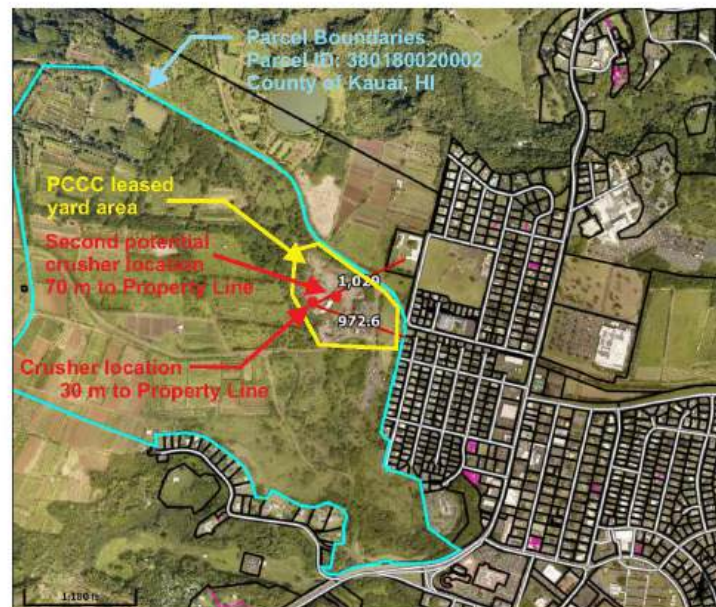
The area around the yard is rural (agricultural) and flat. The access to the property is through a gated dirt road. There is a second gate restricting access to the actual yard within the property. See the following picture:



Within the yard site there are no buildings except for some storage containers which are below the source emission point.

The closest buildings are single family homes at a distance of approximately 296 meters and the American Cancer Society building at 314 meters. See the following picture:

PCCC - Yard Area with the two (2) potential Crusher locations



Map of parcel and leased area

Initial Crusher Location: 461,375 m E - 2,431,076 m N
Second Crusher Location: 461,406 m E - 2,431,095 m N



This picture of the mechanic shops was submitted to the DOH CAB by PCCC. The roofs are open on both sides and are therefore NOT considered “buildings” and are NOT included in any downdraft modeling.

Two potential yard locations for the crusher/engine have been modeled:

- UTM Coordinates Zone 4, 461,375 m E - 2,431,075 m N, 30 meters from fenceline
- UTM Coordinates Zone 4, 461,406 m E – 2,431,095 m N, 70 meters from fenceline

A letter from PCCC dated September 20, 2024 was submitted to the DOH, CAB confirming the two locations within the PCCC yard and indicating that the crusher will only be stored/operated at these two locations, a copy of which is part of this assessment.

Source Information:

Stack height, and stack diameter were measured on site.

STACK HEIGHT	: 14' 6" / 4.42 m
STACK DIAMETER	: 4" / 0.10 m

Exhaust volume, exhaust temperature, maximum fuel consumption, and emission rates are as per

Caterpillar Engine Emissions Data

Serial Number NGH06326

Sales Model C9.3B

Regulatory Build Date 19-APR-2023

Engine Arrangement Number 5395436

Certification Arrangement 3611820

Test Spec Number 4581456

And as per

Performance Data, Performance Number EM2778 at 2000 RPM, 456 HP, 100% Load

MAXIMUM FUEL CONSUMPTION: 22.1 gal/hr (2000 rpm / 456 hp)

MANUFACTURER EMISSION RATES:

TOTAL NOX (AS NO ₂)	0.19 LB/HR
TOTAL CO	0.05 LB/HR
TOTAL HC	0.00 LB/HR (used 0.01 lb/hr for modeling)
TOTAL CO ₂	493 LB/HR
PART MATTER	0.00 LB/HR (used 0.01 lb/hr for modeling)

SO₂ (Sulfur Balance Method) 0.0047 LB/HR based on 22.1 gal/hr fuel cons.
and ULSD fuel with 0.0015% sulfur by weight
(See attached Sulfur Balance Method calculation)

Note: The calculation of the SO₂ emissions in g/sec resulted in 0.0006 g/sec. Used 0.01 lb/hr for modeling as a worst case scenario. 0.01 g/sec results in 0.00126 g/sec.

CONVERSION OF EMISSION RATES FROM LB/HR TO G/SEC:

NO _x	: 0.19 lb/hr x 453.6 g/lb = 86.184 g/hr / 3600 sec/hr = 0.024 g/sec
CO	: 0.05 lb/hr x 453.6 g/lb = 22.68 g/hr / 3600 sec/hr = 0.0063 g/sec
H/C	: 0.01 lb/hr x 453.6 g/lb = 4.536 g/hr / 3600 sec/hr = 0.00126 g/sec
SO ₂	: 0.0047 lb/hr x 453.6 g/lb = 02.13192 g/hr / 3600 sec/hr = 0.0005922 g/sec
PM	: 0.01 lb/hr x 453.6 g/lb = 4.536 g/hr / 3600 sec/hr = 0.00126 g/sec

In-stack NO₂/NO_x ratio: 0.5

(NO₂ to No_x Ratio: Based on EPA memorandum March 1, 2011 from Tyler Fox to Regional Air Directors)

WET EXHAUST FLOW RATE	: 625.6 FT ³ /MIN / 17.715 m ³ /min / 0.295 m ³ /sec
CALCULATED FLOW RATE	: 37.56 M/SEC
EXHAUST TEMPERATURE	: 889.4°F / 749.5 K

Calculation of meter/second flow rate:

Cubic meter flow per second / exhaust area square meter = meter flow per second

Where exhaust diameter = 0.1 m

Where m³/sec flow = 0.295

0.1m diameter / 2 = 0.05 m radius

0.05 m radius square = 0.0025 m² x 3.1416 pi = 0.007854 m² area

0.295 m³/sec / 0.007854 m² = 37.56 m/sec

Modeling Emission Rate:

The emission rate for modeling was set at 1 g/sec. The modeling result was then extrapolated to the actual emission rates (see above) for the different pollutants, except for NO_x 1-HR which was modeled separately with the actual emission rate (see above).

Building Downwash:

The engine is mounted on top of a crusher trailer with the following dimensions:

Height: 14 ft 6" / 4.42 m

Length: 41 ft 6" / 12.62 m

Width: 10 ft / 3.05 m

Building orientation to North: Approximately 90%

Stack Direction from Center: Approximately 90%

Stack Distance from Center: Approximately 3 meters

There are no other buildings nearby. Repair shop containers are below the exhaust level of the source. There are shade roofs between the repair shop containers, but the sides are open and these shade roofs cannot be considered "buildings"

Min. & Max. Temperatures:

Minimum and maximum temperatures were set at 294.3 K and 305.4 K

Surface Characteristics:

Albedo 0.16 (Urban, Summer), Bowen Ratio 2.0 (Urban, Summer, Average Moisture Conditions), Roughness Length 1.0 meter (Urban, Summer), based on tables 4-1, 4-2b, and 4-3, EPA User's Guide for the Aermid Meteorological Preprocessor (Aermet), EPA-454/B-03-002 November 2004.

Screening Model Results

Based on the above inputs the screen model results for all pollutants are below the Ambient Air Quality Standards.

IT IS OUR OPINION THEREFORE THAT THE MODELED PLANT IS IN COMPLIANCE WITH THE AMBIENT AIR QUALITY STANDARDS.

Lakes Software Aerscreen Input Screens

The following are screen shots of the Lakes Software Aerscreen model to demonstrate the inputs into the model as well as one output screen showing modeling results. The screenshots were taken from the NOx 1-hr 30m distance to fence line model. Source, Building, and Terrain inputs were the same (except distance to fence line) for the 70m model run. For the other pollutant runs the pollutant concentration was changed to 1 g/sec. All other inputs were the same as for the NOx 1-hr modeling runs. We therefore only show screen shots of the NOx 1-hr 30 m model run.

For complete modeling information see the Lakes Software Aerscreen modeling files submitted on memory stick.

Sources NOx 30 m:

Source ID: 35.5

Type: POINT

Description (Optional)

POINT Source Location

X Coordinate: 461375.0 [m]

Y Coordinate: 2431075.0 [m]

Release Height: 4.42 [m]

Stack Elevation: 0.0 [m]

Source Release Parameters

Release Type: Vertical

Emission Rate: 0.024 [g/s]

☒ Fixed ☐ Adjust ☐ Above Ambient

Gas Exit Temperature: 749.5 [K]

Stack Inside Diameter: 0.1 [m]

Gas Exit Velocity: 37.56 [m/s]

Gas Exit Flow Rate: 0.297 [m³/s]

2430000 2431000 2432000 2433000 2434000 2435000 2436000 2437000 2438000 2439000 2440000 2441000 2442000 2443000 2444000 2445000 2446000 2447000 2448000 2449000 2450000



2430000 2431000 2432000 2433000 2434000 2435000 2436000 2437000 2438000 2439000 2440000 2441000 2442000 2443000 2444000 2445000 2446000 2447000 2448000 2449000 2450000

Selected - Point Sources: ST041

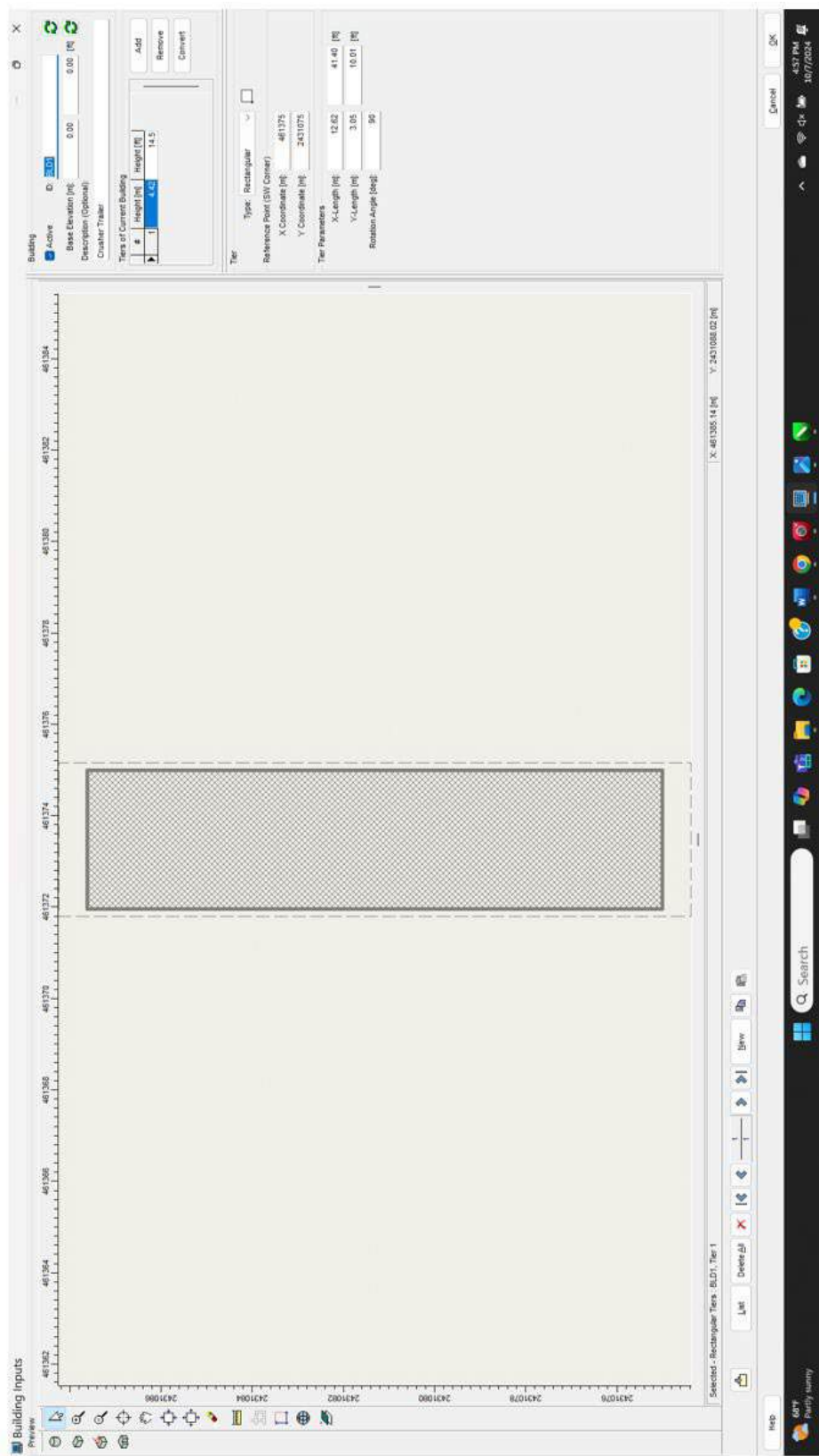
Map View Full Screen Help

Q Search

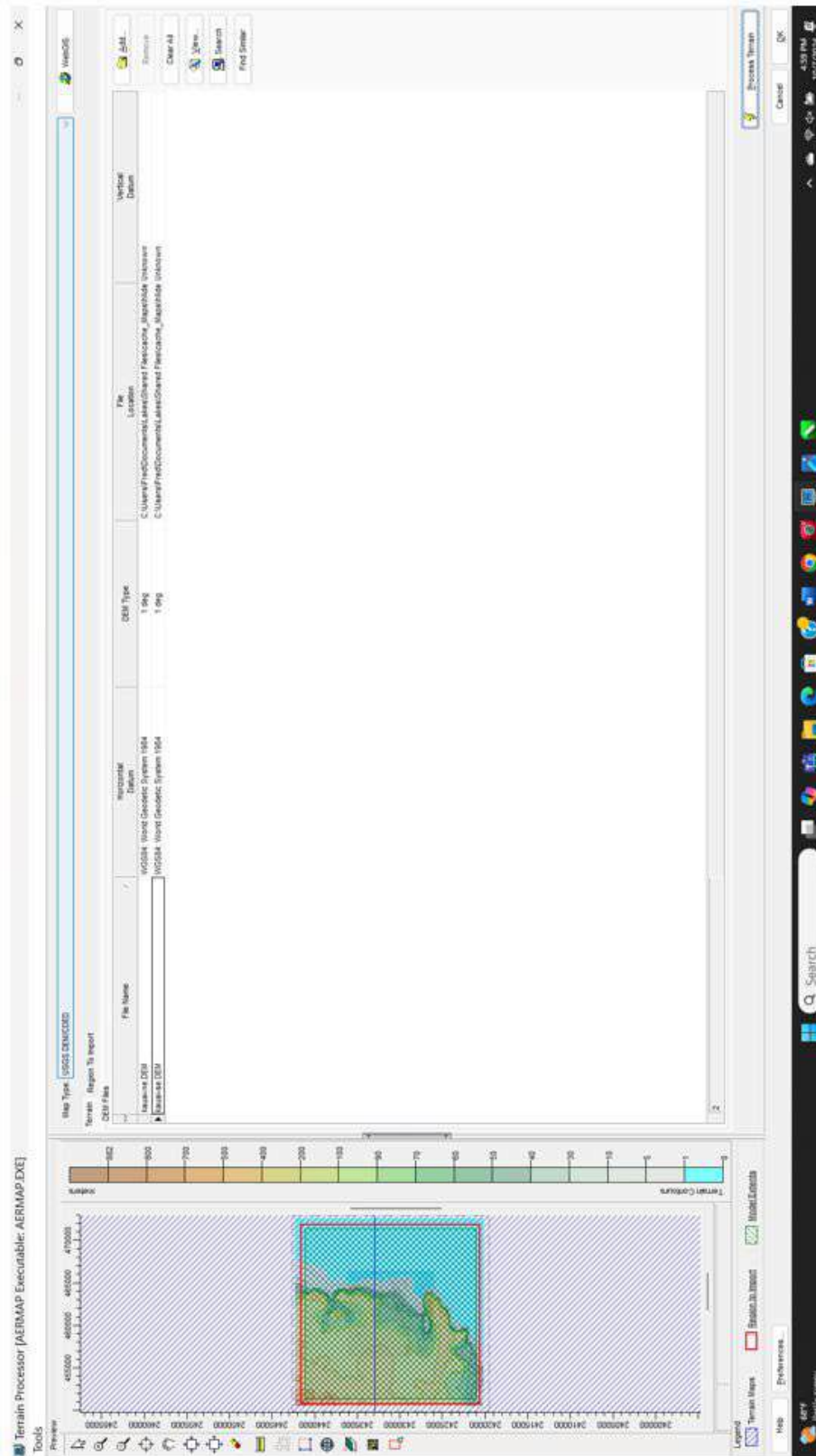
68°F Perry County

4:51 PM 10/7/2024

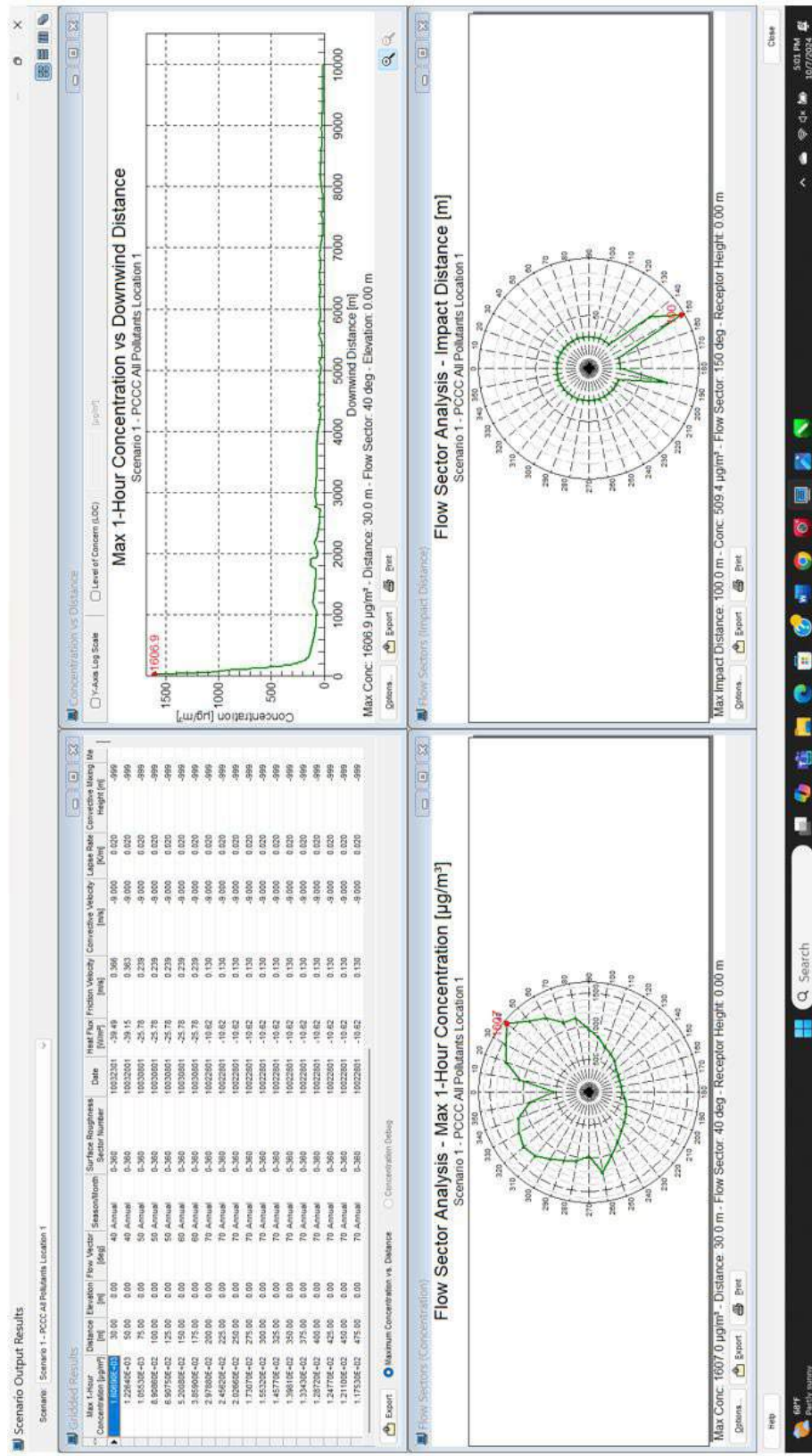
Building NOx 30 m:



Terrain NOx 30 m:



Output NOx 30 m:



NOx 1-Hr Modeling Results at 30 m to Fence Line

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
--	---	-------------------------------------	-------------------------------------	--------------------------------------	-------------------------------------

ELEVATED TERRAIN	34.79	34.79	31.31	20.87	3.479
------------------	-------	-------	-------	-------	-------

DISTANCE FROM SOURCE 30.00 meters directed toward 40 degrees
RECEPTOR HEIGHT 0.00 meters

IMPACT AT THE
AMBIENT BOUNDARY 34.79 34.79 31.31 20.87 3.479

DISTANCE FROM SOURCE 30.00 meters directed toward 40 degrees
RECEPTOR HEIGHT 0.00 meters

AMBIENT AIR QUALITY ANALYS - 1 HOUR NOx

Client:	PCCC Nox - 1Hr Elevation Model 30 m Fenceline	File #	2401015
Plant:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER	Date:	10/9/2024
Source:	456 HP CATERPILLAR C9.3B DIESEL ENGINE		

Emission Rates:

The following parameters were used when performing the AERSCREEN modeling:

Stack Parameters:

Source Type	Direction	Height (M)	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50
Building ID	Height(m)		Min.Horiz.(m)	Max.Horiz.(m)	
Eagle Crusher	4; 42		3.05	12.62	

Downdraft Parameters:

Modeling Parameters:

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple

BACKGR: O3: 8-hr Kapolei 2nd high avg 2020,2021,2022 = 90.3 ug/m3

Nox: 1-Hr Kapolei 98th%, Avg. 2020,2021,2022 = 44.2 ug/m3

EMISSION RATES: Manufacturer Tech Sheet

Concentr.	ug/m3	Distance (m)	Max. HR/yr
1-HR	34.790	30.0	8760
24-HR	(Convert to 1hr = X4)		

OZONE LIMITING METHOD
NO2 to NOx Ratio: 0.5

Ambient Air Quality Analysis (all results are given in ug/m3):

Pollutant	Avg.Period	Em.Rate(g/s)	Time Factor	Concentrat.	Background	Total	Standard	% of Stand.
NOx	1-HR	0.024	n/a	34.7900	44.2	79.0	188.18	42.0

NOx 1-Hr Modeling Results at 70 m to Fence Line

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
--	---	-------------------------------------	-------------------------------------	--------------------------------------	-------------------------------------

ELEVATED TERRAIN	25.84	25.84	23.26	15.50	2.584
------------------	-------	-------	-------	-------	-------

DISTANCE FROM SOURCE 70.00 meters directed toward 50 degrees
RECEPTOR HEIGHT 0.00 meters

IMPACT AT THE
AMBIENT BOUNDARY 25.84 25.84 23.26 15.50 2.584

DISTANCE FROM SOURCE 70.00 meters directed toward 50 degrees
RECEPTOR HEIGHT 0.00 meters

AMBIENT AIR QUALITY ANALYS - 1 HOUR NOx

Client:	PCCC Nox - 1 Hr Elevation Model - 70 m Fenceline	File #	2401015
Plant:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER	Date:	10/9/2024
Source:	456 HP CATERPILLAR C9.3B DIESEL ENGINE		

Emission Rates:

The following parameters were used when performing the AERSCREEN modeling:

Stack Parameters:

Source Type	Direction	Height (M)	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50

Downdraft Parameters:

Building ID	Height(m)	Min.Horiz.(m)	Max.Horiz.(m)
Eagle Crusher	4.42	3.05	12.62

Modeling Parameters:

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple

BACKGR: O3: 8-hr Kapolei 2nd high avg 2020,2021,2022 = 90.3 ug/m3

Nox: 1-Hr Kapolei 98th%, Avg.2020,2021,2022 = 44.2 ug/m3

EMISSION RATES: Manufacturer Tech Sheet

Concentr.	ug/m3	Distance (m)	Max. HR/yr
1-HR	25.840	70.0	8760
24-HR	(Convert to 1 hr = X4)		

OZONE LIMITING METHOD
NO2 to NOX Ratio: 0.5

Ambient Air Quality Analysis (all results are given in ug/m3):

Daily limitation HR/day: 24

Pollutant	Avg.Period	Em.Rate(g/s)	Time Factor	Concentrat.	Background	Total	Standard	% of Stand.
NOx	1-HR	0.024	n/a	25.8400	44.2	70.0	188.18	37.2

Modeling Results at 30 m to Fence Line for all Pollutants

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
ELEVATED TERRAIN	1610.	1610.	1449.	966.3	161.1

DISTANCE FROM SOURCE 30.00 meters directed toward 40 degrees
 RECEPTOR HEIGHT 0.00 meters
 IMPACT AT THE
 AMBIENT BOUNDARY 1610. 1610. 1449. 966.3 161.1
 DISTANCE FROM SOURCE 30.00 meters directed toward 40 degrees
 RECEPTOR HEIGHT 0.00 meters

AMBIENT AIR QUALITY ANALYSIS

Client:	PCCC All pollutants - Elevation Model - 30 m Fenceline	File #	
Plant:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER	Date:	10/9/2024
Source:	456 HP CATERPILLAR C9.3B DIESEL ENGINE		

Emission Rates:

Stack Parameters:

Downdraft Parameters:

Modeling Parameters:

The following parameters were used when performing the AERSCREEN modeling:

Source Type	Direction	Height	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50
Building ID	Height(m)	Min.Horiz. (m)	Max.Horiz.(m)		
Eagle Crusher	4.42	3.05	12.62		

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple
BACKGROUND: State of Hawaii Annual Summary Air Quality Data 2020,2021,2022 Average					
EMISSION RATES: Manufacturer Tech Sheet & Sulfur Balance Method					

Result of Modeling: Maximum concentration at rate of 1.0 g/sec.;
 That result is then extrapolated to actual emission rate for each
 pollutant.

Ambient Air Quality Analysis (all results are given in ug/m3):

Pollutant	Avg.Period	Em.Rate(g/s)	Time Factor	Concentrat.	Background	Total	Standard	% of Stand.
CO	1-HR	0.0063	1	10.143	1106.10	1116.2	10,000	11.2
	8-HR	0.0063	0.7	7.100	762.60	769.7	5,000	15.4
Nox 1-Hr see sep. Analysis	1-HR	n/a	n/a	n/a	n/a	n/a	n/a	n/a
Nox	Annual*	0.024	0.2	5.796	5.60	11.4	70	16.3
SO2	1-HR	0.0006	1	0.966	8.60	9.6	196.5	4.9
	3-HR	0.0006	0.9	0.869	7.80	8.7	1,300	0.7
	24-HR	0.0006	0.4	0.386	5.20	5.6	365	1.5
	Annual	0.0006	0.2	0.193	1.80	1.993	80	2.5
PM10	24-HR	0.00126	0.4	0.811	39.00	39.8	150	26.5
	Annual	0.00126	0.2	0.406	12.70	13.1	50	26.2
PM2.5	24-HR	0.00126	0.4	0.811	7.60	8.4	35	24.0
	Annual	0.00126	0.2	0.406	3.70	4.1	15	27.4
Pb	Quarter	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* Accounts for max. hours/year annual limitation and reduction of Nox to NO2: NOx reduction method (x0.75).

Modeling Results at 70 m to Fence Line for all Pollutants

***** AERSCREEN MAXIMUM IMPACT SUMMARY *****

	MAXIMUM 1-HOUR CALCULATION PROCEDURE	SCALED 3-HOUR CONC (ug/m3)	SCALED 8-HOUR CONC (ug/m3)	SCALED 24-HOUR CONC (ug/m3)	SCALED ANNUAL CONC (ug/m3)
--	---	-------------------------------------	-------------------------------------	--------------------------------------	-------------------------------------

ELEVATED TERRAIN	1196.	1196.	1077.	717.8	119.6
------------------	-------	-------	-------	-------	-------

DISTANCE FROM SOURCE 70.00 meters directed toward 50 degrees
 RECEPTOR HEIGHT 0.00 meters
 IMPACT AT THE
 AMBIENT BOUNDARY 1196. 1196. 1077. 717.8 119.6
 DISTANCE FROM SOURCE 70.00 meters directed toward 50 degrees
 RECEPTOR HEIGHT 0.00 meters

AMBIENT AIR QUALITY ANALYSIS

Client: PCCC All pollutants - Elevation Model - 70 m Fenceline
 Plant: TPH EAGLE 1200-25-CV IMPACT CRUSHER
 Source: 456 HP CATERPILLAR C9.3B DIESEL ENGINE

File # 2401015
 Date: 10/9/2024

Emission Rates:

Stack Parameters:

Downdraft Parameters:

Modeling Parameters:

The following parameters were used when performing the AERSCREEN modeling:

Source Type	Direction	Height	Diam. (m)	Veloc. (m/s)	Temp. (K)
Point	up	4.42	0.10	37.56	749.50
Building ID	Height(m)	Min.Horiz.(m)	Max.Horiz.(m)		
Eagle Crusher	4.42	3.05	12.62		

Ambient Air Temp. (F)	Receptor Height (m)	Urban/Rural Options	Wind Speed (m/s)	Stability Class	Terrain
294.3-305.4	0.0	RURAL	default	default	simple
BACKGROUND: State of Hawaii Annual Summary Air Quality Data					
2020,2021,2022 Average					
EMISSION RATES: Manufacturer Tech Sheet & Sulfur Balance Method					

Result of Modeling: Maximum concentration at rate of 1.0 g/sec.:
 That result is then extrapolated to actual emission rates for each pollutant.

Ambient Air Quality Analysis (all results are given in ug/m3):

Pollutant	Avg Period	Em Rate(g/s)	Time Factor	Concentrat.	Background	Total	Standard	% of Stand.
CO	1-HR	0.0063	1	7.535	1106.10	1113.6	10,000	11.1
	8-HR	0.0063	0.7	5.274	762.60	767.9	5,000	15.4
Nox 1-Hr see sep. Analysis	1-HR	n/a	n/a	n/a	n/a	n/a	n/a	n/a
	Annual*	0.024	0.2	4.306	5.60	9.9	70	14.2
SO2	1-HR	0.05922	1	70.827	8.60	79.4	196.5	40.4
	3-HR	0.05922	0.9	63.744	7.80	71.5	1,300	5.5
	24-HR	0.05922	0.4	28.331	5.20	33.5	365	9.2
	Annual	0.05922	0.2	14.165	1.60	15.965	80	20.0
PM10	24-HR	0.00126	0.4	0.603	39.00	39.6	150	26.4
	Annual	0.00126	0.2	0.301	12.70	13.0	50	26.0
PM2.5	24-HR	0.00126	0.4	0.603	7.60	8.2	35	23.4
	Annual	0.00126	0.2	0.301	3.70	4.0	15	26.7
Pb	Quarter	N/A	N/A	N/A	N/A	N/A	N/A	N/A

* Accounts for max. hours/year annual limitation and reduction of Nox to NO2: NOx reduction method (x0.75).

Note: Lakes Software Aerscreen modeling files will be submitted separately in electronic format.

SO2 EMISSION CALCULATIONS BASED ON SULFUR BALANCE

CLIENT:	PACIFIC CONCRETE CUTTING & CORING INC
PLANT:	300 TPH EAGLE 1200-25-CV IMPACT CRUSHER
SOURCE:	456 HP CATERPILLAR C9.3B DIESEL ENGINE

DATE:	3/4/2024	JOB #	2401015
--------------	-----------------	--------------	----------------

Where:

S + O₂ -> SO₂

MW of S 32

MW of O₂ 32

MW of SO₂ 64

Max. Sulfur Content in Fuel (S1) 0.0015% by weight

Max. Fuel Consumption (MF) 22.10

Max. Hours / Year (MH) 8760

Density of Diesel Fuel (WD) 7.1 lb/gal

SO2 Emissions in lb/hr:

[S1 (%) x MF (gal/hr) x WD (lb/gal)] x 2 = SO₂ (lb/hr) **0.0047** lb/hr

SO2 Emissions in tons/year:

SO₂ (lb/hr) x MH (hrs/yr) / 2000 (lb/ton) = SO₂ (TPY) **0.021** TPY

SO2 Emissions in grams / second:

SO₂ (lb/hr) x 453.6 g/lb / 3600 sec/hr = SO₂ (g/sec) **0.0006** g/sec

PCCC confirmation of crusher locations within base yard:



PACIFIC CONCRETE CUTTING & CORING, INC.

LIC# ABC-24013

PO Box 662261, Lihue, HI 96766

Phone: (808) 245-7171 Fax: (808) 245-9393

September 20, 2024

Department of Health
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782
Attn.: Mr. Ukris Wongse-Ont

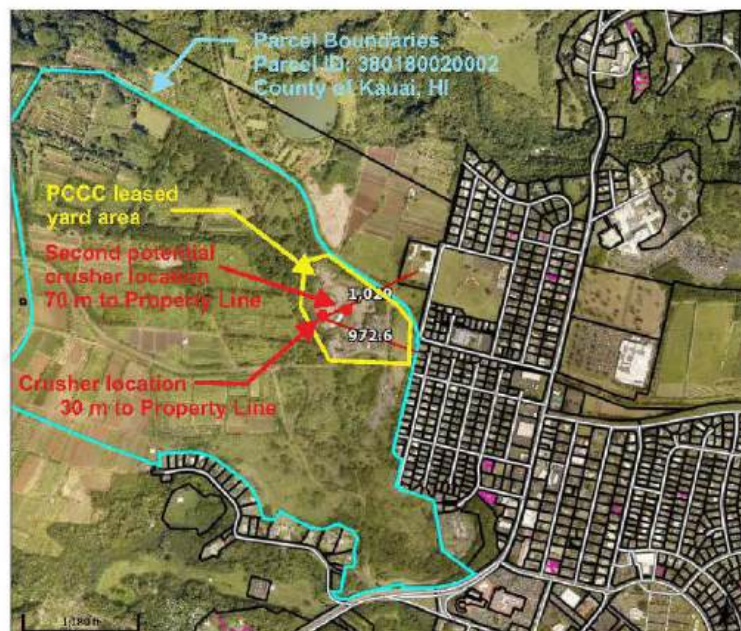
RE: New Permit Application for 300 TPH Eagle Impact Crusher, serial no. 32094

This is to confirm that the new Eagle Impact Crusher will be stored or operated at our yard at Ehiku Street, Lihue, Kauai, HI 96766, TMK (4) 3-8-004:001 at only two different locations.

1. UTM code Zone 4, 461,375 m E - 2,431,076 m N
2. UTM code Zone 4, 461,406 m E - 2,431,095 m N

The other areas of the base yard are used for other purposes like parking other equipment, storing material, truck traffic, car parking, maintenance and office.

Please see the map image below:



I certify that it is my intention to store/operate the 300 TPH Eagle Impact Crusher, serial number 32094 only at the above indicated two locations within our yard area.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Eli Brainerd

Digitally signed by Eli Brainerd

Date: 2024.09.20 07:27:19

-10'00'

Eli Brainerd

President

Date



Engine Emissions Data

For Emissions / Certification feedback and questions, please submit a ticket via our ERC [Request Portal](#)

This emission data is Caterpillar's best estimate for this rating. If actual emissions are required then an emission test needs to be run on your engine.

Serial Number (Machine)			
Serial Number (Engine)	NGH06326		
Sales Model	C9.3B		
Regulatory Build Date	19-APR-2023		
Interlock Code Progression	From Interlock	To Interlock	Software PN
	87	88	6364129-00

Engine ReRated

Engine Arrangement Number	5395436
Certification Arrangement	3611820
Test Spec Number	4581456
Regulatory Status	IMO Compliant
Regulatory Status	EPA / ARB / EU / R120 / MLIT / S. Korea Tier 5
Labeled Model Year	2023
EPA Family Code	PCPXL09.3NTF
EPA Emissions Level	EPA TIER 4f
EU Emissions Level	EU STAGE V
EU Type Approval	e24*2016/1628*2022/992EV6/D*0014
UN R120 Type Approval	120R-NRE6V09.3NTA
As-Shipped Flash File	6364129
Flash File Progression	Re-rated
CORR FL Power at RPM	No Power Available2200 RPM
Advertised Power	456 HP 2,000RPM
Total Displacement	9.3 L

Disclaimer: The information provided has been compiled from third party sources and is accurate to the best of Caterpillar's knowledge. However, Caterpillar cannot guarantee the accuracy, completeness, or validity of the information and is not liable for any errors or omissions contained therein. All information provided should be independently verified and confirmed, including by examining the emissions label located on the engine.

[Need emission replacement label? Click here!](#)

Caterpillar Confidential: **Green**

Content Owner: Commercial Processes Division

Web Master(s): [PSG Web Based Systems Support](#)

Current Date: 2/7/2024, 9:21:39 AM

© Caterpillar Inc. 2024 All Rights Reserved.

[Data Privacy Statement](#).

Performance Number: EM2778

Change Level: 01

SALES MODEL:	C9.3B	COMBUSTION:	DIRECT INJECTION
BRAND:	CAT	ENGINE SPEED (RPM):	2,000
MACHINE SALES MODEL:		PEAK TORQUE SPEED (RPM):	1,400
ENGINE POWER (BHP):	456	TORQUE RISE (%):	41
PEAK TORQUE (FT-LB):	1,540.0	ASPIRATION:	TA
COMPRESSION RATIO:	17	AFTERCOOLER TYPE:	ATAAC
RATING LEVEL:	D-RATING	AFTERCOOLER CIRCUIT TYPE:	JW+OC, ATAAC
PUMP QUANTITY:	1	INLET MANIFOLD AIR TEMP (F):	122
FUEL TYPE:	DIESEL	JACKET WATER TEMP (F):	192.2
MANIFOLD TYPE:	DRY	TURBO CONFIGURATION:	SINGLE
GOVERNOR TYPE:	ELEC	TURBO QUANTITY:	1
CAMSHAFT TYPE:	STANDARD	TURBOCHARGER MODEL:	GTB4088/0.84 - A/R
IGNITION TYPE:	CI	CERTIFICATION YEAR:	2017
INJECTOR TYPE:	CR	PISTON SPD @ RATED ENG SPD (FT/MIN):	1,955.4
REF EXH STACK DIAMETER (IN):	4		
MAX OPERATING ALTITUDE (FT):	7,349		

INDUSTRY	SUBINDUSTRY	APPLICATION
INDUSTRIAL	GENERAL INDUSTRIAL	INDUSTRIAL
INDUSTRIAL	CONSTRUCTION	INDUSTRIAL
INDUSTRIAL	MATERIAL HANDLING	INDUSTRIAL
INDUSTRIAL	MINING	INDUSTRIAL
INDUSTRIAL	AGRICULTURE	INDUSTRIAL
OIL AND GAS	WELL SERVICING	INDUSTRIAL
INDUSTRIAL	INDUSTRIAL POWER UNIT	INDUSTRIAL
OIL AND GAS	LAND PRODUCTION	INDUSTRIAL
INDUSTRIAL	FORESTRY	INDUSTRIAL

General Performance Data

INLET MANIFOLD AIR TEMPERATURE ("INLET MFLD TEMP") FOR THIS CONFIGURATION IS MEASURED AT THE OUTLET OF THE AFTERCOOLER.

ENGINE SPEED	ENGINE POWER	ENGINE TORQUE	BRAKE MEAN EFF PRES (BMEP)	BRAKE SPEC FUEL CONSUMPTN (BSFC)	ISO BRAKE SPEC FUEL CONSUMPTN (BSFC)	VOL FUEL CONSUMPTN (VFC)	ISO VOL FUEL CONSUMPTN (VFC)
RPM	BHP	LB-FT	PSI	LB/BHP-HR	LB/BHP-HR	GAL/HR	GAL/HR
2,200	437	1,044	278	0.351	0.348	21.6	21.4
2,100	447	1,117	297	0.348	0.345	21.9	21.7
2,000	456	1,197	319	0.344	0.341	22.1	21.9
1,900	456	1,260	335	0.339	0.336	21.8	21.6
1,800	456	1,330	354	0.333	0.330	21.4	21.2
1,700	447	1,381	368	0.330	0.326	20.8	20.6
1,600	437	1,435	382	0.326	0.323	20.1	19.9
1,500	424	1,485	395	0.323	0.320	19.3	19.1
1,400	411	1,540	410	0.323	0.320	18.7	18.5
1,300	362	1,464	390	0.316	0.313	16.2	16.0
1,200	317	1,388	369	0.315	0.312	14.1	13.9
1,100	275	1,313	349	0.316	0.313	12.2	12.1
1,000	229	1,205	321	0.324	0.321	10.5	10.4
900	188	1,096	292	0.331	0.328	8.8	8.7
800	151	989	263	0.364	0.360	7.6	7.5
700	110	827	220	0.376	0.372	5.7	5.7
600	76.0	665	177	0.393	0.389	4.2	4.1

ENGINE SPEED	ENGINE POWER	INLET MFLD PRES	INLET MFLD TEMP	EXH MFLD TEMP	EXH MFLD PRES	ENGINE OUTLET TEMP	COMPRESSOR OUTLET PRES	COMPRESSOR OUTLET TEMP
RPM	BHP	IN-HG	DEG F	DEG F	IN-HG	DEG F	IN-HG	DEG F
2,200	437	61.9	121.7	1,206.8	55.1	880.3	66	402.8
2,100	447	65.4	121.4	1,224.8	55.3	895.6	70	412.3
2,000	456	71.0	121.4	1,230.8	57.8	889.4	75	431.2
1,900	456	72.9	121.8	1,224.1	55.4	887.7	77	428.8
1,800	456	74.7	121.7	1,223.1	52.9	890.6	78	427.4
1,700	447	75.3	121.4	1,213.8	49.5	888.6	79	421.6
1,600	437	75.1	121.6	1,221.3	45.9	899.8	78	419.1
1,500	424	74.1	120.7	1,236.3	42.0	918.7	77	418.0
1,400	411	73.0	121.1	1,257.6	38.3	945.9	75	416.2
1,300	362	62.2	121.8	1,246.5	30.1	964.5	64	384.8

PERFORMANCE DATA[EM2778]

February 7, 2024

1,200	317	52.1	121.5	1,239.2	23.7	993.5	54	355.8
1,100	275	44.6	116.6	1,238.0	19.2	1,019.5	46	328.9
1,000	229	35.5	122.2	1,252.4	14.8	1,060.2	36	293.7
900	188	28.0	119.7	1,256.9	11.7	1,098.9	28	260.2
800	151	17.4	116.4	1,133.7	9.2	1,049.3	18	191.2
700	110	10.9	107.8	1,038.6	7.1	978.6	11	155.4
600	76.0	6.6	102.7	935.1	5.5	891.1	7	133.8

General Performance Data (Continued)

ENGINE SPEED	ENGINE POWER	WET INLET AIR VOL FLOW RATE	ENGINE OUTLET WET EXH GAS VOL FLOW RATE	WET INLET AIR MASS FLOW RATE	WET EXH GAS MASS FLOW RATE	WET EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)	DRY EXH VOL FLOW RATE (32 DEG F AND 29.98 IN HG)
RPM	BHP	CFM	CFM	LB/HR	LB/HR	FT3/MIN	FT3/MIN
2,200	437	943.3	1,722.4	4,113.8	4,267.2	632.0	577.7
2,100	447	933.3	1,721.7	4,071.2	4,226.6	624.6	570.0
2,000	456	936.0	1,716.5	4,085.8	4,242.8	625.6	570.6
1,900	456	912.7	1,689.7	3,975.7	4,130.2	616.6	561.9
1,800	456	886.4	1,667.2	3,850.8	4,002.7	607.1	552.7
1,700	447	851.7	1,634.5	3,687.2	3,834.5	596.0	542.0
1,600	437	807.5	1,596.6	3,483.6	3,626.0	577.4	524.2
1,500	424	753.0	1,543.2	3,237.1	3,374.4	550.4	498.1
1,400	411	698.6	1,493.9	2,992.5	3,124.9	522.6	471.4
1,300	362	583.9	1,328.9	2,482.5	2,596.9	458.8	412.2
1,200	317	482.5	1,167.3	2,041.6	2,141.4	394.9	353.0
1,100	275	402.2	1,022.0	1,695.5	1,782.3	339.7	302.3
1,000	229	321.4	865.5	1,351.5	1,425.7	280.0	247.4
900	188	256.2	721.8	1,075.3	1,137.4	227.7	200.1
800	151	200.2	561.3	838.9	892.5	182.9	158.8
700	110	153.0	411.8	640.4	681.0	140.8	122.3
600	76.0	114.9	291.4	481.0	510.6	106.1	92.5

Heat Rejection Data

ENGINE SPEED	ENGINE POWER	REJECTION TO JACKET WATER	REJECTION TO ATMOSPHERE	REJECTION TO EXH	EXHAUST RECOVERY TO 350F	FROM OIL COOLER	FROM AFTERCOOLER	WORK ENERGY	LOW HEAT VALUE ENERGY	HIGH HEAT VALUE ENERGY
RPM	BHP	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN	BTU/MIN
2,200	437	7,681	1,954	17,286	9,590	2,305	4,625	18,539	47,035	50,104
2,100	447	7,610	1,928	17,503	9,791	2,283	4,718	18,937	47,627	50,734
2,000	456	7,432	1,948	17,377	9,715	2,255	5,023	19,335	48,118	51,258
1,900	456	7,310	1,815	16,989	9,431	2,218	4,840	19,335	47,326	50,414
1,800	456	7,291	1,736	16,616	9,197	2,182	4,712	19,335	46,561	49,599
1,700	447	7,071	1,684	15,873	8,781	2,165	4,521	18,960	45,155	48,101
1,600	437	6,882	1,628	15,252	8,490	2,139	4,278	18,536	43,652	46,500
1,500	424	6,717	1,554	14,642	8,195	2,105	4,030	17,988	42,035	44,777
1,400	411	6,744	1,496	14,094	7,982	2,118	3,804	17,408	40,584	43,232
1,300	362	6,174	1,272	12,161	6,862	1,946	3,143	15,369	35,127	37,419
1,200	317	5,805	1,102	10,697	5,954	1,859	2,609	13,453	30,616	32,614
1,100	275	5,327	952	9,152	5,176	1,728	1,983	11,660	26,599	28,334
1,000	229	4,798	800	7,706	4,421	1,672	969	9,726	22,747	24,232
900	188	4,059	649	6,352	3,739	1,522	609	7,968	19,050	20,293
800	151	4,553	560	5,586	2,746	1,786	350	6,386	16,439	17,512
700	110	3,984	452	4,316	1,874	1,487	133	4,672	12,467	13,280
600	76.0	3,485	349	3,195	1,200	1,181	97	3,221	9,089	9,682

Sound Data

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
--------------	--------------	---------------	--------	--------	--------	--------	--------	--------	--------	--------	--------	--------

PERFORMANCE DATA[EM2778]

February 7, 2024

RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,200	437	104.6	92.1	87.0	80.6	88.6	88.1	92.7	93.6	96.0	97.4	96.3
2,100	447	104.5	87.6	80.2	80.5	86.4	87.5	92.9	93.7	96.2	97.6	96.6
2,000	456	104.4	83.0	73.3	80.2	84.2	86.9	92.9	93.7	96.2	97.5	96.6
1,900	456	103.9	81.4	73.7	82.2	85.2	87.4	92.1	93.4	95.7	97.1	96.0
1,800	456	103.3	79.7	74.0	84.0	86.2	88.0	91.1	93.0	95.2	96.5	95.2
1,700	447	101.9	74.3	73.7	86.7	82.7	87.8	89.9	92.2	94.0	94.9	93.4
1,600	437	100.8	69.0	73.5	89.3	79.3	87.6	88.6	91.3	92.8	93.4	91.7
1,500	424	99.2	67.7	80.0	86.5	80.6	86.5	87.5	90.0	91.5	91.7	89.7
1,400	411	97.9	66.5	86.6	83.8	82.0	85.3	86.3	88.7	90.2	90.0	87.8
1,300	362	94.8	68.4	86.6	83.6	84.1	82.1	83.1	84.9	86.4	85.9	82.6
1,200	317	92.9	70.3	86.6	83.5	86.3	78.9	79.9	81.2	82.6	81.7	77.5
1,100	275	89.3	82.3	77.4	81.0	73.8	75.0	77.4	78.5	82.0	79.6	73.1
1,000	229	86.4	78.5	71.7	78.8	74.3	70.7	77.8	76.6	78.9	75.1	68.9
900	188	82.9	70.0	73.5	72.1	70.5	69.7	75.9	75.3	73.6	71.5	66.2
800	151	81.0	61.6	75.4	65.4	66.6	68.7	74.1	74.0	68.3	68.0	63.5
700	110	78.4	64.5	70.8	64.8	66.9	67.5	70.1	70.9	66.9	66.5	61.8
600	76.0	76.8	67.5	66.1	64.1	67.3	66.4	66.1	67.7	65.6	65.1	60.0

EXHAUST:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,200	437	94.3	92.3	90.1	87.9	86.0	85.3	83.9	82.2	81.5	79.5	76.2
2,100	447	94.6	92.5	90.4	88.3	86.4	85.6	84.3	82.6	81.9	79.9	76.6
2,000	456	94.6	92.5	90.3	88.4	86.5	85.7	84.4	82.8	82.1	80.1	76.7
1,900	456	94.0	91.9	89.7	87.7	85.9	85.1	83.7	82.2	81.4	79.4	76.0
1,800	456	93.0	91.1	88.8	86.9	85.1	84.3	82.8	81.3	80.5	78.4	75.1
1,700	447	91.4	89.4	87.3	85.5	83.6	82.8	81.3	79.8	78.9	77.0	73.9
1,600	437	89.7	87.8	85.7	84.0	82.2	81.3	79.8	78.3	77.4	75.6	72.7
1,500	424	87.8	85.9	83.9	82.4	80.4	79.5	78.0	76.6	75.6	74.0	71.3
1,400	411	85.8	84.0	82.1	80.7	78.5	77.7	76.2	74.9	73.7	72.3	69.9
1,300	362	80.4	79.1	77.4	76.0	73.7	72.9	71.6	70.8	69.2	67.8	67.9
1,200	317	75.0	74.2	72.8	71.3	68.9	68.1	67.0	66.6	64.7	63.2	65.9
1,100	275	70.6	69.6	68.2	66.7	64.3	63.5	62.5	63.6	60.3	59.6	65.2
1,000	229	65.9	64.7	63.2	61.5	59.2	58.4	57.6	61.9	57.1	57.7	65.1
900	188	62.5	60.7	59.0	57.8	56.0	55.5	55.5	61.6	56.6	57.6	65.1
800	151	59.0	56.8	54.8	54.0	52.7	52.6	53.5	61.4	56.2	57.4	65.0
700	110	58.8	57.2	55.5	55.1	54.5	55.7	54.7	61.1	56.3	57.6	64.7
600	76.0	58.6	57.6	56.1	56.3	56.2	58.7	55.8	60.9	56.5	57.7	64.3

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	OVERALL SOUND	100 HZ	125 HZ	160 HZ	200 HZ	250 HZ	315 HZ	400 HZ	500 HZ	630 HZ	800 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)
2,200	437	113.9	80.7	90.9	84.1	89.3	90.0	89.8	93.1	96.8	99.2	100.4
2,100	447	113.2	82.4	86.7	86.3	87.7	89.2	90.1	93.0	97.2	99.3	99.8
2,000	456	112.6	84.1	82.5	88.6	86.1	88.5	90.4	92.9	97.6	99.4	99.3
1,900	456	111.6	79.0	84.4	89.1	86.0	87.6	88.9	91.7	96.1	98.1	97.8
1,800	456	110.5	73.7	86.3	89.5	86.0	86.9	87.3	90.6	94.6	96.8	96.4
1,700	447	109.6	73.6	88.5	86.9	83.8	86.1	85.7	90.9	93.3	95.7	95.4
1,600	437	108.8	73.5	90.6	84.1	81.8	85.4	84.0	91.2	92.0	94.7	94.5
1,500	424	107.1	73.5	86.7	82.3	81.8	84.3	83.6	88.0	90.4	92.9	93.3
1,400	411	105.6	73.6	82.7	80.6	81.9	83.1	83.2	84.7	88.7	91.2	92.1
1,300	362	104.5	71.9	79.2	79.3	80.3	83.0	82.2	84.9	88.5	90.6	91.8
1,200	317	103.5	70.2	75.6	78.1	78.7	83.0	81.2	85.2	88.2	90.0	91.5
1,100	275	102.5	71.0	76.7	80.2	78.7	81.2	80.5	84.7	85.9	89.4	90.5
1,000	229	102.3	69.3	83.5	77.9	78.7	82.1	80.5	82.3	85.4	89.2	89.7
900	188	102.1	67.0	78.1	78.7	79.0	80.8	79.8	82.6	86.3	89.2	90.1
800	151	101.9	64.7	72.8	79.5	79.4	79.4	79.1	82.9	87.2	89.2	90.5
700	110	102.6	63.9	74.2	80.4	78.6	79.0	84.7	83.4	86.1	89.8	90.3
600	76.0	103.4	63.1	75.6	81.4	77.8	78.5	90.3	83.8	85.0	90.4	90.1

MECHANICAL:SOUND POWER(1/3 Octave Frequencies)

ENGINE SPEED	ENGINE POWER	1000 HZ	1250 HZ	1600 HZ	2000 HZ	2500 HZ	3150 HZ	4000 HZ	5000 HZ	6300 HZ	8000 HZ	10000 HZ
RPM	BHP	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)	dB(A)

PERFORMANCE DATA[EM2778]

February 7, 2024

2,200	437	108.5	105.7	105.5	103.3	102.3	100.4	98.4	98.1	96.3	94.5	91.8
2,100	447	107.9	105.1	104.7	102.3	101.3	99.5	97.9	97.5	95.6	93.9	91.2
2,000	456	107.3	104.4	104.0	101.4	100.4	98.5	97.5	97.0	95.0	93.3	90.6
1,900	456	106.2	103.6	102.6	100.4	99.7	97.6	96.5	95.9	93.8	92.5	89.7
1,800	456	105.1	102.9	101.1	99.5	98.9	96.7	95.6	94.8	92.7	91.7	88.7
1,700	447	104.4	102.0	99.5	98.4	97.9	96.5	95.1	93.9	91.7	90.8	88.4
1,600	437	103.7	101.1	97.9	97.3	96.8	96.3	94.5	93.0	90.8	89.9	88.0
1,500	424	102.0	99.0	96.9	96.1	95.2	94.4	93.2	92.3	89.6	89.0	87.3
1,400	411	100.3	96.8	95.8	94.9	93.6	92.5	91.9	91.7	88.4	88.1	86.5
1,300	362	99.3	95.3	95.1	93.2	92.8	91.4	90.3	90.1	87.5	87.4	85.6
1,200	317	98.3	93.7	94.3	91.5	92.1	90.4	88.7	88.6	86.7	86.6	84.6
1,100	275	96.9	93.0	92.1	91.2	91.5	89.7	88.0	88.4	86.3	85.7	83.7
1,000	229	96.8	93.8	91.0	91.1	91.3	88.3	87.8	89.0	85.6	84.6	82.6
900	188	96.1	93.8	91.2	91.3	91.1	87.8	86.8	89.2	86.2	84.1	81.5
800	151	95.5	93.9	91.4	91.6	90.8	87.3	85.8	89.3	86.8	83.5	80.4
700	110	95.9	94.6	92.1	92.2	91.9	89.8	86.7	90.3	86.9	83.2	79.9
600	76.0	96.3	95.3	92.7	92.8	92.9	92.3	87.6	91.2	86.9	82.9	79.3

Emissions Data

EM4290 - OPTIONAL EMISSIONS DATA FOR EM2778 - 326KW @ 2200RPM

DIESEL

RATED SPEED NOMINAL DATA: 2000 RPM

ENGINE POWER	BHP	456	342	228	114	45.6
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	123	21	8	3	11
TOTAL CO	G/HR	22	23	18	13	9
TOTAL HC	G/HR	2	4	5	4	7
TOTAL CO2	KG/HR	239	167	116	67	39
PART MATTER	G/HR	1.0	0.7	0.7	0.5	0.2
TOTAL NOX (AS NO2) (CORR 5% O2)	MG/NM3	116.3	28.5	14.7	10.1	59.7
TOTAL CO (CORR 5% O2)	MG/NM3	20.8	31.1	34.2	41.5	49.6
TOTAL HC (CORR 5% O2)	MG/NM3	1.2	5.1	9.0	12.7	34.7
PART MATTER (CORR 5% O2)	MG/NM3	0.8	0.8	1.1	1.3	0.9
TOTAL NOX (AS NO2) (CORR 5% O2)	PPM	57	14	7	5	29
TOTAL CO (CORR 5% O2)	PPM	17	25	27	33	40
TOTAL HC (CORR 5% O2)	PPM	2	9	17	24	65
TOTAL NOX (AS NO2)	G/HP-HR	0.27	0.06	0.03	0.03	0.24
TOTAL CO	G/HP-HR	0.05	0.07	0.08	0.11	0.20
TOTAL HC	G/HP-HR	0.00	0.01	0.02	0.04	0.16
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/HR	0.27	0.05	0.02	0.01	0.02
TOTAL CO	LB/HR	0.05	0.05	0.04	0.03	0.02
TOTAL HC	LB/HR	0.00	0.01	0.01	0.01	0.02
TOTAL CO2	LB/HR	527	367	255	149	86
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	8.6	11.3	12.8	14.6	16.4

SECONDARY SPEED NOMINAL DATA: 1800 RPM

ENGINE POWER	BHP	456	342	228	114	45.6
PERCENT LOAD	%	100	75	50	25	10
TOTAL NOX (AS NO2)	G/HR	84	17	7	3	7
TOTAL CO	G/HR	23	23	16	12	7
TOTAL HC	G/HR	1	3	3	2	4
TOTAL CO2	KG/HR	223	161	110	62	34
PART MATTER	G/HR	0.9	0.5	0.6	0.4	0.0
TOTAL NOX (AS NO2) (CORR 5% O2)	MG/NM3	84.5	23.9	13.6	10.3	45.4
TOTAL CO (CORR 5% O2)	MG/NM3	22.9	31.4	32.2	43.9	47.1
TOTAL HC (CORR 5% O2)	MG/NM3	1.3	3.2	5.4	6.9	23.9
PART MATTER (CORR 5% O2)	MG/NM3	0.7	0.6	1.1	1.3	0.3
TOTAL NOX (AS NO2) (CORR 5% O2)	PPM	41	12	7	5	22
TOTAL CO (CORR 5% O2)	PPM	18	25	26	35	38
TOTAL HC (CORR 5% O2)	PPM	2	6	10	13	45
TOTAL NOX (AS NO2)	G/HP-HR	0.19	0.05	0.03	0.02	0.16
TOTAL CO	G/HP-HR	0.05	0.07	0.07	0.11	0.16

PERFORMANCE DATA[EM2778]

February 7, 2024

TOTAL HC	G/HP-HR	0.00	0.01	0.01	0.02	0.10
PART MATTER	G/HP-HR	0.00	0.00	0.00	0.00	0.00
TOTAL NOX (AS NO2)	LB/HR	0.19	0.04	0.01	0.01	0.02
TOTAL CO	LB/HR	0.05	0.05	0.04	0.03	0.02
TOTAL HC	LB/HR	0.00	0.01	0.01	0.00	0.01
TOTAL CO2	LB/HR	493	356	242	136	75
PART MATTER	LB/HR	0.00	0.00	0.00	0.00	0.00
OXYGEN IN EXH	%	9.1	10.8	12.1	14.0	16.1

Regulatory Information

EPA TIER 4 FINAL			2014 - ----	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO THE EPA ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
U.S. (INCL CALIF)	EPA	NON-ROAD	TIER 4 FINAL	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

EU STAGE V		2019 - ----		
GASEOUS EMISSION DATA MEASUREMENTS ARE CONSISTENT WITH THOSE DESCRIBED IN EU 2016/1628, ECE REGULATION NO. 96 AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. GASEOUS EMISSION VALUES ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
EUROPE	EU	NON-ROAD	STAGE V	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.015

JAPAN MLIT TIER 4F			2016 - ----	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO MLIT ARE CONSISTENT WITH THOSE DESCRIBED IN EPA 40 CFR PART 1039 SUBPART F AND ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE JAPANESE NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
JAPAN	JAPAN MLIT	NON-ROAD	TIER 4F	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.02

SOUTH KOREA MOE TIER 4F			2015 - ----	
GASEOUS EMISSIONS DATA MEASUREMENTS PROVIDED TO KOREA ARE CONSISTENT WITH THOSE DESCRIBED IN ISO 8178 FOR MEASURING HC, CO, PM, AND NOX. THE "MAX LIMITS" SHOWN BELOW ARE WEIGHTED CYCLE AVERAGES AND ARE IN COMPLIANCE WITH THE KOREAN NON-ROAD REGULATIONS.				
Locality	Agency	Regulation	Tier/Stage	Max Limits - G/BKW - HR
SOUTH KOREA	SOUTH KOREA MOE	NON-ROAD	TIER 4F	CO: 3.5 NOx: 0.4 HC: 0.19 PM: 0.025

UN R120	2018 - ----
UNIFORM PROVISIONS CONCERNING THE APPROVAL OF INTERNAL COMBUSTION ENGINES TO BE INSTALLED IN AGRICULTURAL AND FORESTRY TRACTORS AND IN NON-ROAD MOBILE MACHINERY, WITH REGARD TO THE MEASUREMENT OF THE NET POWER, NET TORQUE AND SPECIFIC FUEL CONSUMPTION.	

Altitude Derate Data

STANDARD

ALTITUDE CORRECTED POWER CAPABILITY (BHP)

AMBIENT OPERATING TEMP (F)	50	60	70	80	90	100	110	120	130	140	NORMAL
ALTITUDE (FT)											
0	456	456	456	456	456	455	454	453	451	436	456
1,000	456	456	456	455	454	452	451	450	444	423	456
2,000	456	455	454	452	451	449	448	446	430	408	453
3,000	453	451	450	448	447	445	444	434	414	394	450
4,000	449	448	446	444	443	441	438	420	400	380	447
5,000	445	443	442	440	435	428	420	403	385	367	443
6,000	444	443	436	429	422	415	407	394	375	356	443
7,000	438	431	424	417	410	403	396	386	366	345	436
8,000	433	424	416	408	401	393	386	377	354	332	433
9,000	414	406	399	391	384	376	368	360	339	318	417
10,000	393	386	379	371	364	356	348	340	324	304	398
11,000	373	366	359	351	344	336	329	321	309	292	379
12,000	353	346	339	332	325	318	311	304	293	280	359
13,000	334	328	321	315	308	301	294	287	280	268	340
14,000	317	311	305	298	292	285	279	272	265	255	325
15,000	301	295	289	283	277	270	263	256	249	242	312

Cross Reference

Test Spec	Setting	Engine Arrangement	Engineering Model	Engineering Model Version	Start Effective Serial Number	End Effective Serial Number
4581456	NAP	5395436	EE463	-	NGH00001	
5526641	PP7761	5395436	EE463	-	NGH00001	
4581812	NAP	5442940	EE465	-	NGK00001	
5526652	PP7795	5442940	EE465	-	NGK00001	
5526641	PP7761	5543102	EE463	-	NGH00001	
4150791	PP7364	6189640	EE463	-	HNW00001	

Supplementary Data

Type	Classification	Performance Number
EMISSIONS	NOMINAL DATA	EM4290

This performance data is supplementary data for:
EM4290

Performance Parameter Reference

Parameters Reference:DM9600-14
PERFORMANCE DEFINITIONS

PERFORMANCE DEFINITIONS DM9600

APPLICATION:

Engine performance tolerance values below are representative of a typical production engine tested in a calibrated dynamometer test cell at SAE J1995 standard reference conditions. Caterpillar maintains ISO9001:2000 certified quality management systems for engine test Facilities to assure accurate calibration of test equipment. Engine test data is corrected in accordance with SAE J1995. Additional reference material SAE J1228, J1349, ISO 8665, 3046-1:2002E, 3046-3:1989, 1585, 2534, 2288, and 9249 may apply in part or are similar to SAE J1995. Special engine rating request (SERR) test data shall be noted.

PERFORMANCE PARAMETER TOLERANCE FACTORS:

Power +/- 3%

Torque +/- 3%

Exhaust stack temperature +/- 8%

Inlet airflow +/- 5%

Intake manifold pressure-gage +/- 10%

Exhaust flow +/- 6%

Specific fuel consumption +/- 3%

Fuel rate +/- 5%

Specific DEF consumption +/- 3%

DEF rate +/- 5%

Heat rejection +/- 5%

Heat rejection exhaust only +/- 10%

Heat rejection CEM only +/- 10%

Heat Rejection values based on using treated water.

Torque is included for truck and industrial applications, do not use for Gen Set or steady state applications.

On C7 - C18 engines, at speeds of 1100 RPM and under these values are provided for reference only, and may not meet the tolerance listed.

On 3500 and C175 engines, at speeds below Peak Torque these values are provided for reference only, and may not meet the tolerance listed.

These values do not apply to C280/3600. For these models, see the tolerances listed below.

C280/3600 HEAT REJECTION TOLERANCE FACTORS:

Heat rejection +/- 10%

Heat rejection to Atmosphere +/- 50%

Heat rejection to Lube Oil +/- 20%

Heat rejection to Aftercooler +/- 5%

TEST CELL TRANSDUCER TOLERANCE FACTORS:

Torque +/- 0.5%

Speed +/- 0.2%

Fuel flow +/- 1.0%

Temperature +/- 2.0 C degrees

Intake manifold pressure +/- 0.1 kPa
OBSERVED ENGINE PERFORMANCE IS CORRECTED TO SAE J1995 REFERENCE
AIR AND FUEL CONDITIONS.
REFERENCE ATMOSPHERIC INLET AIR
FOR 3500 ENGINES AND SMALLER
SAE J1228 AUG2002 for marine engines, and J1995 JAN2014 for other
engines, reference atmospheric pressure is 100 KPA (29.61 in hg),
and standard temperature is 25deg C (77 deg F) at 30% relative
humidity at the stated aftercooler water temp, or inlet manifold
temp.
FOR 3600 ENGINES
Engine rating obtained and presented in accordance with ISO 3046/1
and SAE J1995 JANJAN2014 reference atmospheric pressure is 100
KPA (29.61 in hg), and standard temperature is 25deg C (77 deg F)
at 30% relative humidity and 150M altitude at the stated
aftercooler water temperature.
MEASUREMENT LOCATION FOR INLET AIR TEMPERATURE
Location for air temperature measurement air cleaner inlet at
stabilized operating conditions.
REFERENCE EXHAUST STACK DIAMETER
The Reference Exhaust Stack Diameter published with this dataset
is only used for the calculation of Smoke Opacity values displayed
in this dataset. This value does not necessarily represent the
actual stack diameter of the engine due to the variety of exhaust
stack adapter options available. Consult the price list, engine
order or general dimension drawings for the actual stack diameter
size ordered or options available.
REFERENCE FUEL
DIESEL
Reference fuel is #2 distillate diesel with a 35API gravity;
A lower heating value is 42,780 KJ/KG (18,390 BTU/LB) when used at
15 deg C (59 deg F), where the density is
850 G/Liter (7.0936 Lbs/Gal).
GAS
Reference natural gas fuel has a lower heating value of 33.74 KJ/L
(905 BTU/CU Ft). Low BTU ratings are based on 18.64 KJ/L (500
BTU/CU FT) lower heating value gas. Propane ratings are based on
87.56 KJ/L (2350 BTU/CU Ft) lower heating value gas.
ENGINE POWER (NET) IS THE CORRECTED FLYWHEEL POWER (GROSS) LESS
EXTERNAL AUXILIARY LOAD
Engine corrected gross output includes the power required to drive
standard equipment; lube oil, scavenge lube oil, fuel transfer,
common rail fuel, separate circuit aftercooler and jacket water
pumps. Engine net power available for the external (flywheel)
load is calculated by subtracting the sum of auxiliary load from
the corrected gross flywheel out put power. Typical auxiliary
loads are radiator cooling fans, hydraulic pumps, air compressors
and battery charging alternators. For Tier 4 ratings additional
Parasitic losses would also include Intake, and Exhaust
Restrictions.
ALTITUDE CAPABILITY
Altitude capability is the maximum altitude above sea level at
standard temperature and standard pressure at which the engine
could develop full rated output power on the current performance
data set.
Standard temperature values versus altitude could be seen on
TM2001.
When viewing the altitude capability chart the ambient temperature
is the inlet air temp at the compressor inlet.
Engines with ADEM MEUI and HEUI fuel systems operating at
conditions above the defined altitude capability derate for
atmospheric pressure and temperature conditions outside the values
defined, see TM2001.
Mechanical governor controlled unit injector engines require a
setting change for operation at conditions above the altitude
defined on the engine performance sheet. See your Caterpillar
technical representative for non standard ratings.
REGULATIONS AND PRODUCT COMPLIANCE
TMI Emissions information is presented at 'nominal' and 'Potential
Site Variation' values for standard ratings. No tolerances are
applied to the emissions data. These values are subject to change
at any time. The controlling federal and local emission
requirements need to be verified by your Caterpillar technical
representative.
Customer's may have special emission site requirements that need
to be verified by the Caterpillar Product Group engineer.
EMISSION CYCLE LIMITS:
Cycle emissions Max Limits apply to cycle-weighted averages only.
Emissions at individual load points may exceed the cycle-weighted
limit.
WET & DRY EXHAUST/EMISSIONS DESCRIPTION:
Wet - Total exhaust flow or concentration of total exhaust flow
Dry - Total exhaust flow minus water vapor or concentration of exhaust
flow with water vapor excluded
EMISSIONS DEFINITIONS:
Emissions : DM1176
EMISSION CYCLE DEFINITIONS
1. For constant-speed marine engines for ship main propulsion,

including,diesel-electric drive, test cycle E2 shall be applied,
for controllable-pitch propeller sets
test cycle E2 shall be applied.
2. For propeller-law-operated main and propeller-law-operated
auxiliary engines the test cycle E3 shall be applied.
3. For constant-speed auxiliary engines test cycle D2 shall be
applied.
4. For variable-speed, variable-load auxiliary engines, not
included above, test cycle C1 shall be applied.

HEAT REJECTION DEFINITIONS:
Diesel Circuit Type and HHV Balance : DM9500
HIGH DISPLACEMENT (HD) DEFINITIONS:
3500: EM1500

RATING DEFINITIONS:
Agriculture : TM6008
Fire Pump : TM6009
Generator Set : TM6035
Generator (Gas) : TM6041
Industrial Diesel : TM6010
Industrial (Gas) : TM6040
Irrigation : TM5749
Locomotive : TM6037
Marine Auxiliary : TM6036
Marine Prop (Except 3600) : TM5747
Marine Prop (3600 only) : TM5748
MSHA : TM6042
Oil Field (Petroleum) : TM6011
Off-Highway Truck : TM6039
On-Highway Truck : TM6038
SOUND DEFINITIONS:
Sound Power : DM8702
Sound Pressure : TM7080
Date Released : 10/27/21

Facility Emissions

Pollutant	Total Facility Emissions		Emissions (Capturable & Point Source)		Fugitive Emissions (Non-Capturable)		New Equipment Non-Fugitive Only (Capturable) (Δ TPY)	Thresholds					
	(TPY)		(TPY)		(TPY)			Non-Fugitive Emissions				Total Facility Emissions	
	Limited 8760 hr/yr	Unlimited 8,760 hr/yr	Limited 8760 hr/yr	Unlimited 8,760 hr/yr	Limited ² 8760 hr/yr	Unlimited 8,760 hr/yr		BACT significant (TPY)	AERR Type A (1-year) (T)	AERR Type B (3-year) (T)	Major source (TPY)	Synthetic Minor (yes/no)	DOH CAB In-House (TPY)
CO	14.38	14.38	14.38	14.38	n/a	n/a	14.38	100	2500	1000	100	no	250
NO _x	1.64	1.64	1.64	1.64	n/a	n/a	1.64	40	2500	100	100	no	25
SO ₂	0.020	0.020	0.020	0.020	n/a	n/a	0.02	40	2500	100	100	no	25
PM	18.39	18.39	1.66	1.66	16.73	16.73	1.66	25	n/a	n/a	100	no	25
PM-10	5.68	5.68	0.79	0.79	4.89	4.89	0.79	15	250	100	100	no	25
PM-2.5	0.82	0.82	0.21	0.21	0.62	0.62	0.21	10	250	100	100	no	n/a
VOC	4.64	4.64	4.64	4.64	n/a	n/a	4.64	40	250	100	100	no	25
Aldehydes	0.93	0.93	0.93	0.93	n/a	n/a	n/a	n/a	n/a	n/a	n/a	no	n/a
Propylene	0.03	0.03	0.03	0.03	n/a	n/a	n/a	n/a	n/a	n/a	n/a	no	n/a
HAPs	0.086	0.086	0.086	0.086	n/a	n/a	0.09	(Lead) 0.6	(Lead) n/a	(Lead) 0.5	25	no	5
NH ₃	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	250	100	n/a	n/a	n/a

note:

1. Capturable fugitive and point source emissions from the portable 300 TPH Eagle crusher equipped with 456 hp Caterpillar DE.
2. Fugitive emissions from conveyors, truck loading, truck unloading, upaved roads, and storage piles.
3. BACT, AERR, Major source, and Synthetic Minor determinations do not include fugitive PM, PM-10 and PM-2.5.
4. Total Facility Emissions and DOH CAB In-House Emissions are based on the total facility unlimited emissions.
5. Unlimited emissions are based on 8,760 hrs/yr of operation for the portable 300 TPH Eagle crusher equipped with 456 hp Caterpillar DE.

Greenhouse Gas

GHG	GWP	GHG Mass-Based Emissions 8,760 hr/yr (Metric TPY)	CO ₂ e Based Emissions 8,760 hr/yr (Metric TPY)	CO ₂ e Based Emissions 8,760 hr/yr (Short TPY)
CO ₂	1	1961.60	1961.60	2162.27
CH ₄	25	0.080	1.99	2.19
N ₂ O	298	0.0159	4.74	5.23
Total			1968.33	2169.69

Regulations

BACT HAR 11-60.1, Subchapter 5	AERR 40 CFR 51 Subpart A	PSD CFR 52 40	NSPS 40 CFR 60	NESHAPs 40 CFR 61	NESHAPs 40 CFR 63	CAM 40 CFR 64	CAB In-House
(yes/no)	(yes/no)	(yes/no)	(yes/no)	(yes/no)	(yes/no)	(yes/no)	(yes/no)
No	No	No	Yes Subpart 000 Subpart IIII	No	Yes Subpart ZZZZ via Subpart IIII	No	Yes covered source

Stone Processing

AP-42 Fifth Edition, Chapter 11, Table 19.2-2, Emission Factors for Crushed Stone Processing Operations (8/04)

Emissions (lb/hr) = Emission Factor (lb/ton) x Processing Capacity (ton/hr)

	Value	Unit	Notes
Hour Limit	8760	hour/year	4/3/24 Application
Processing Capacity - Eagle impact crusher (model 1200 CV, type UM-25, model no. 33895000, serial no. 32094)	300	ton/hour	4/3/24 Application, nameplate
Total Processing Capacity	300	ton/hour	
Conveyors (4x) (uncontrolled) Eagle impact crusher	4	conveyor(s)	4/3/24 Application
Total Conveyor Transfer Points	4	conveyor(s)	
Control Efficiency (water suppression)	70%	%	AP-42 Fifth Edition, Chapter 11.19.1.2

PM	Capacity (ton/hour)	EF (lb/ton)	Emissions (lb/hr)	Emissions (TPY)	
				8,760 hr/yr	8,760 hr/yr
Impact Crusher - Eagle (controlled EF, water suppression) (serial no. 32094)	300	1.20E-03	0.360	1.577	1.577
Total Non-Fugitive PM			0.360	1.577	1.577
Truck Loading (water suppression)	300	1.96E-04	0.018	0.077	0.077
Truck Unloading (water suppression)	300	3.14E-05	0.003	0.012	0.012
Conveyors (4x) (controlled EF, water suppression) (Eagle impact crusher, serial no. 32094)	300	1.40E-04	0.168	0.736	0.736
Total Fugitive PM			0.19	0.825	0.825

PM-10	Capacity (ton/hour)	EF (lb/ton)	Emissions (lb/hr)	Emissions (TPY)	
				8,760 hr/yr	8,760 hr/yr
Impact Crusher - Eagle (controlled EF, water suppression) (serial no. 32094)	300	5.40E-04	0.162	0.710	0.710
Total Non-Fugitive PM-10			0.162	0.710	0.710
Truck Loading	300	1.00E-04	0.009	0.039	0.039
Truck Unloading	300	1.60E-05	0.001	0.006	0.006
Conveyors (4x) (controlled EF, water suppression) (Eagle impact crusher, serial no. 32094)	300	4.60E-05	0.055	0.242	0.242
Total Fugitive PM-10			0.07	0.288	0.288

PM-2.5	Capacity (ton/hour)	EF (lb/ton)	Emissions (lb/hr)	Emissions (TPY)	
				8,760 hr/yr	8,760 hr/yr
Impact Crusher - Eagle (controlled EF, water suppression) (serial no. 32094)	300	1.00E-04	0.030	0.131	0.131
Total Non-Fugitive PM-2.5			0.030	0.131	0.131
Truck Loading	300	2.94E-05	0.003	0.012	0.012
Truck Unloading	300	4.71E-06	0.000	0.002	0.002
Conveyors (4x) (controlled EF, water suppression) (Eagle impact crusher, serial no. 32094)	300	1.30E-05	0.016	0.068	0.068
Total Fugitive PM-2.5			0.019	0.082	0.082

notes:

1. For crusher and conveyors, Controlled EFs from AP-42, Chapter 11, Table 11.19.2-2 (8/04) are utilized for water suppression.
2. Assume PM-10 = 51% of PM and PM-2.5 = 15% of PM when no data available (AP-42 Appendix B.2 (1/95))
3. 70% control efficiency was not applied to the crusher and conveyor since controlled EFs were used for crusher equipped with water sprays.
4. For truck loading and unloading, EFs from AP-42, Chapter 11, Table 11.19.2-2 (8/04) are utilized with 70% control efficiency for water suppression.

Vehicle Travel on Unpaved Roads

AP-42, Chapter 13, Section 13.2.2 - Unpaved Roads (11/06)

Emissions (lb/hr) = Emission Factor (lb/VMT) x Vehicle Miles Traveled (VMT/hr)

Vehicle Miles Traveled (VMT)

	Value	Unit	Notes
Hour Limit	8760	hour/year	4/3/24 Application
Processing Capacity	300	ton/hour	4/3/24 Application, manufacturer specifications
Vehicle Load Capacity	21	ton	
Travel Distance Roundtrip	0.25	mile	
Average VMT/hour	3.57	VMT/hour	Distance x Processing Capacity / Load
Total VMT	31286	VMT/year	VMT/hour x Annual Hour Limit

Mean Vehicle Weight

	Value	Unit	Notes
Mean Vehicle Weight	26.5	tons	
Mean vehicle weight assumed average tare weight of 16 tons and average gross weight of 37 tons			

Emission Factors

For vehicles traveling on unpaved surfaces at industrial sites:

$$E = k(s/12)^a(W/3)^b$$

where: E = size-specific emission factor (lb/VMT)
s = surface material silt content (%)
W = mean vehicle weight (tons)
k,a,b = empirical constants

$$E_{\text{ext}} = E[(365-P)/365]$$

where: E_{ext} = annual size-specific emission factor extrapolated for natural mitigation (lb/VMT)
P = number of days in a year with at least 0.01 in of precipitation (wrcc.dri.edu, Naalehu 14 station)

	Value			Unit	Notes
	PM-2.5	PM-10	PM		
k	0.15	1.5	4.9	lb/VMT	AP-42 Table 13.2.2-2
a	0.9	0.9	0.7	-	AP-42 Table 13.2.2-2
b	0.45	0.45	0.45	-	AP-42 Table 13.2.2-2
s	3.9			%	AP-42 Sec. 13.2.2 - Related Information (used in 1
P	198			day	Lihue WSO AP 1020.1, Station 515580 (www.wrcc

Pollutant	E (lb/VMT)	E _{ext} (lb/VMT)	Control Efficiency	Emissions (lb/hr)	Emissions (TPY)	
					8,760 hr/yr	8,760 hr/yr
PM	5.95	2.72	70%	2.92	12.77	12.77
PM-10	1.45	0.67	70%	0.71	3.12	3.12
PM-2.5	0.15	0.07	70%	0.07	0.31	0.31

notes:

1. 70% control efficiency was assumed for water suppression (AP-42, Chapter 11, Section 11.19.1.2 (11/95))

Storage Piles

AP-42, Chapter 13, Section 13.2.4 - Aggregate Handling and Storage Piles (11/06)

Emissions (lb/hr) = Emission Factor (lb/ton) x Processing Capacity (ton/hr)

	Value	Unit	Notes
Hour Limit	8760	hour/year	Use 8,760 hr/yr for year round storage piles
Processing Capacity	300	ton/hour	4/3/24 Application, manufacturer specifications
k (PM)	0.74	-	AP-42 Sec. 13.2.4.3
k (PM-10)	0.35	-	AP-42 Sec. 13.2.4.3
k (PM-2.5)	0.053	-	AP-42 Sec. 13.2.4.3
U	13.4	mph	AP-42 Table 7.1-7 (06/2020) (Lihue, HI, average)
M	2.1	%	AP-42 Table 13.2.4-1 (various limestone products)

Emission Factors

$E = k(0.0032)(U/5)^{1.3}/(M/2)^{1.4}$, (lb/ton)

where: E (lb/ton)

k = particle size multiplier

U = mean wind speed (mph)

M = material moisture content (%)

Pollutant	E (lb/ton)	Control Efficiency	Emissions (lb/hr)	Emissions (TPY)	
				8,760 hr/yr	8,760 hr/yr
PM	7.97E-03	70%	0.72	3.14	3.14
PM-10	3.77E-03	70%	0.34	1.49	1.49
PM-2.5	5.71E-04	70%	0.05	0.225	0.225

notes:

1. 70% control efficiency was assumed for water suppression (AP-42, Chapter 11, Section 11.19.1.2 (11/95))

456 hp Caterpillar (Name plate: model no. C9.3B, serial no. NGH06326) for the powering of 300 TPH Eagle Crusher portable impact crusher (model 1200 CV, model no. 33895000, serial no. 32094)

AP-42, Chapter 3, Section 3.4 - Large Stationary Diesel and All Stationary Dual-fuel Engines (10/96)

Emissions (lb/hr) = Emission Factor (g/(hp-hr)) x bhp x (1.014 hp/bhp) x Conversion Factor (2.20462 lb/1,000 g)

Emissions (lb/hr) = Heat Input Rate (MMBtu/hr) x Emission Factor (lb/MMBtu)

	Value	Unit	Notes
Hour Limit	8760	hour/year	4/3/24 Application
Fuel Consumption	22.1	gallon/hour	4/3/24 Application, Manufacturer data
Power	456	hp	4/3/24 Application, engine nameplate
Diesel Sulfur Content	0.0015	%	4/3/24 Application and nonroad fuel
Diesel Fuel Heating Value	137000	Btu/gallon	AP-42, Appendix A, diesel
Heat Input Rate	3.03	MMBtu/hour	Fuel Consumption x Heating Value

Pollutant	EF g/(hp-hr)	EF (lb/MMBtu)	EF (kg/MMBtu)	Emissions (lb/hr)	Emissions (TPY) 8,760 hr/yr	Emissions (TPY) 8,760 hr/yr
CO				3.28	14.38	14.38
NO _x				0.38	1.64	1.64
SO ₂				0.005	0.020	0.020
PM				0.019	0.082	0.082
PM-10				0.018	0.079	0.079
PM-2.5				0.017	0.074	0.074
VOC (TOC)		0.35		1.060	4.641	4.641
Aldehydes		0.07		0.212	0.928	0.928
Propylene		0.00258		0.0078	0.034	0.034
CO ₂			73.96	493.68	2162.31	2162.31
CH ₄			0.003	0.020	0.088	0.088
N ₂ O			0.0006	0.004	0.018	0.018

notes:

1. CO, NO_x, and PM emissions from EPA's Tier Standards plus 25%

2. SO₂ emissions = fuel rate (gal/hr) x diesel fuel density (7.05 lb/gal) x %S x (64.06 SO₂ g/mol / 32.065 S g/mol)

3. VOC (TOC) EF (lb/MMBtu) from AP-42, Chapter 3, Table 3.3-1

4. Assume PM-10 = 96% of PM and PM-2.5 = 90% of PM per AP-42, Appendix B.2, Table B.2-2

5. CO₂ EF (kg/MMBtu) from 40 CFR 98 Table C-1

6. CH₄, N₂O EFs (kg/MMBtu) from 40 CFR 98 Table C-2

Engine Family: PCPXL09.3NTF

2023, EPA Tier 4 Final Certification

CO 3.5 g/kW-hr -----> 2.6258 lbs/hr -----> +25% 3.2823 lbs/hr

NO_x 0.4 g/kW-hr -----> 0.3001 lbs/hr -----> +25% 0.3751 lbs/hr

PM 0.02 g/kW-hr -----> 0.0150 lbs/hr -----> +25% 0.0188 lbs/hr

g/sec

0.41356

0.04726

0.00059

0.00236

0.00227

0.00213

0.13352

Hazardous Air Pollutant (HAP)	EF (lb/MMBtu)	Emissions (lb/hr)	Emissions (TPY) 8,760 hr/yr	Emissions (TPY) 8,760 hr/yr
Benzene	9.33E-04	2.82E-03	1.24E-02	1.24E-02
Toluene	4.09E-04	1.24E-03	5.42E-03	5.42E-03
Xylenes	2.85E-04	8.63E-04	3.78E-03	3.78E-03
Propylene	2.58E-03	7.81E-03	3.42E-02	3.42E-02
1,3-Butadiene	3.91E-05	1.18E-04	5.19E-04	5.19E-04
Formaldehyde	1.18E-03	3.57E-03	1.56E-02	1.56E-02
Acetaldehyde	7.67E-04	2.32E-03	1.02E-02	1.02E-02
Acrolein	9.25E-05	2.80E-04	1.23E-03	1.23E-03
Naphthalene	8.48E-05	2.57E-04	1.12E-03	1.12E-03
Acenaphthylene	5.06E-06	1.53E-05	6.71E-05	6.71E-05
Acenaphthene	1.42E-06	4.30E-06	1.88E-05	1.88E-05
Fluorene	2.92E-05	8.84E-05	3.87E-04	3.87E-04
Phenanthrene	2.94E-05	8.90E-05	3.90E-04	3.90E-04
Anthracene	1.87E-06	5.66E-06	2.48E-05	2.48E-05
Fluoranthene	7.61E-06	2.30E-05	1.01E-04	1.01E-04
Pyrene	4.78E-06	1.45E-05	6.34E-05	6.34E-05
Benzo(a)anthracene	1.68E-06	5.09E-06	2.23E-05	2.23E-05
Chrysene	3.53E-07	1.07E-06	4.68E-06	4.68E-06
Benzo(b)fluoranthene	9.91E-08	3.00E-07	1.31E-06	1.31E-06
Benzo(k)fluoranthene	1.55E-07	4.69E-07	2.06E-06	2.06E-06
Benzo(a)pyrene	1.88E-07	5.69E-07	2.49E-06	2.49E-06
Indeno(1,2,3-cd)pyrene	3.75E-07	1.14E-06	4.97E-06	4.97E-06
Dibenzo(a,h)anthracene	5.83E-07	1.77E-06	7.73E-06	7.73E-06
Benzo(g,h,i)perylene	4.89E-07	1.48E-06	6.48E-06	6.48E-06
Total HAPs		0.020	0.086	0.086

notes:

1. HAP EFs (lb/MMBtu) from AP-42, Chapter 3, Table 3.3-2 (4/25)



EAGLE

CRUSHER COMPANY INC.
GALION, OH. U.S.A.

UNIT NAME

PORTABLE CRUSHING PLANT

SIZE

1200 CV

MODEL NUMBER

33895000

SERIAL NUMBER

32094

For genuine EAGLE replacement parts
and manuals call:

Team Eagle Parts/Service

800 - 25(EAGLE)

800 - 253 - 2453

FAX: 419 - 468 - 2101









PACIFIC CONCRETE CUTTING & CORING, INC.

LIC# ABC-24013

PO Box 662261, Lihue, HI 96766

Phone: (808) 245-7171 Fax: (808) 245-9393

September 20, 2024

Department of Health
Clean Air Branch
2827 Waimano Home Road, #130
Pearl City, HI 96782
Attn.: Mr. Ukris Wongse-Ont

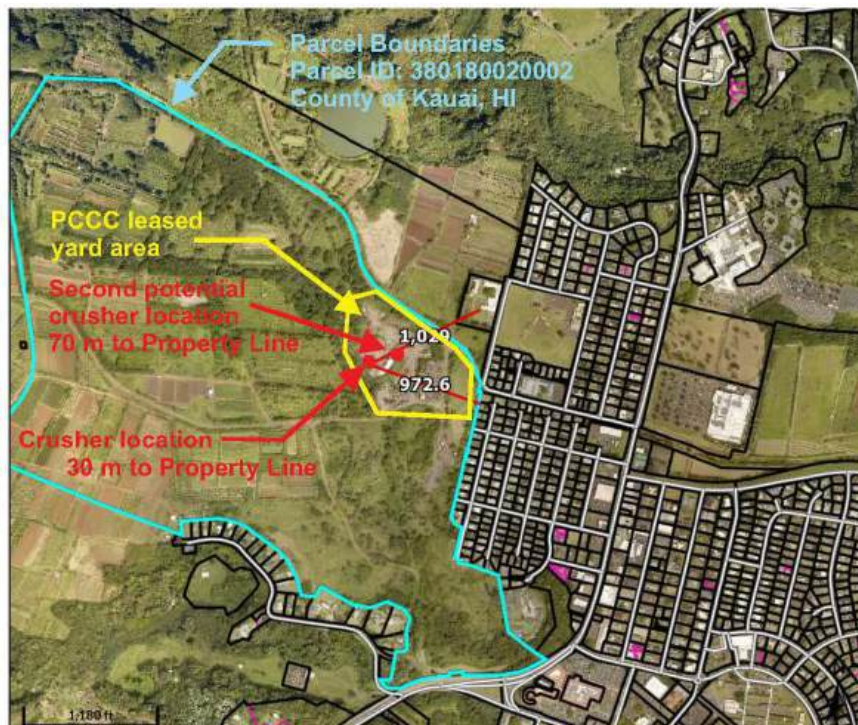
RE: New Permit Application for 300 TPH Eagle Impact Crusher, serial no. 32094

This is to confirm that the new Eagle Impact Crusher will be stored or operated at our yard at Ehiku Street, Lihue, Kauai, HI 96766, TMK (4) 3-8-004:001 at only two different locations.

1. UTM code Zone 4, 461,375 m E - 2,431,076 m N
2. UTM code Zone 4, 461,406 m E - 2,431,095 m N

The other areas of the base yard are used for other purposes like parking other equipment, storing material, truck traffic, car parking, maintenance and office.

Please see the map image below:



I certify that it is my intention to store/operate the 300 TPH Eagle Impact Crusher, serial number 32094 only at the above indicated two locations within our yard area.

I certify that I have knowledge of the facts herein set forth, that the same are true, accurate and complete to the best of my knowledge and belief, and that all information not identified by me as confidential in nature shall be treated by the Department of Health as public record.

Eli Brainerd

President

Date



Michigan



POWER SYSTEMS

1-888-MICH-CAT

ENGINE SERIAL #

INGH06326

OEM B

SUPPORT FOR THE LIFETIME OF YOUR EQUIPMENT

SCAN CODE TO:

your Cat® engine

ENGINE MODEL CH.3B

ENGINE SALES MODEL:

MAX 500 M
ALT 1640 FT

SER. NO. NCH06326

CERT. NO. 3611820

MODIFICATION NO. SEE ORDER

AR. NO. 5395436

CORE AR. 5395436

OEM NO.

456 (INTERCEPT) 0

HP

456

340.0 KW AT 2000 RPM

VERIFY CURRENT ENGINE SETTINGS

SERVICE TOOL TO VERIFY

280-2065 Futhill 135-5852 or 350-8616

ELECTRONICS GP

ECM SOFTWARE 6364129

PERF. SPEC 4581456

FTS (SLOPE) 0

NGH06326

EMISSION CONTROL INFORMATION

POWER CATEGORY: 130 < = kW < = 560

CAC, PTOX, OC, SCR - U, AMOX

ROAD AND STATIONARY AND CALIFORNIA OFF-ROAD

ES. ULTRA LOW SULFUR FUEL ONLY.

DISPLACEMENT: 9.3 L

ENGINE MODEL: C9.3B

PM FEL (g/kW-HR): 0.01

NOx FEL (g/kW-HR): N/A

NOx + NMHC FEL (g/kW-HR): N/A

EV6/D*0014

China and is therefore exempt under GB20891-2014 from P.R.China

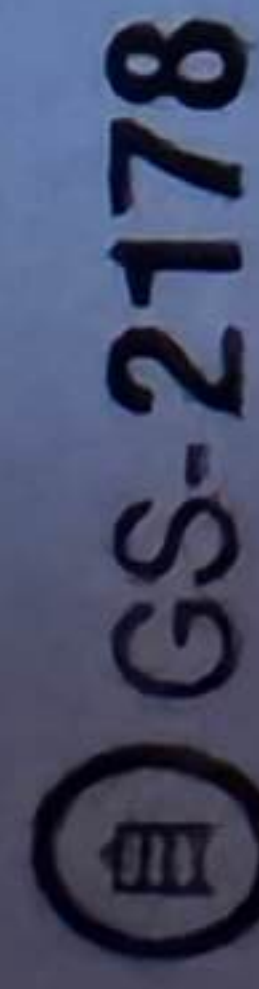
符合中华人民共和国国家标准 GB20891-2014 豁免规定

Approval: 5th// C9.3B(CE9.3D14)//22EN*CA*05

Engine Type: 53899

DATE OF MANUFACTURE: 04 / 2023

68167 Mannheim, Germany



4348\$11

FMT 4348

fulfills 7E-8050, 350-8619, and 350-8620

IEC 60034-1



13796498

WEG EQUIPAMENTOS ELÉTRICOS S.A.
 AV. PREF. WALDEMAR GRUBBA, 3000
 89256-900 - JARAGUÁ DO SUL - SC
 CNPJ - 07.175.725/0010-50
 MADE IN BRAZIL

MOD GTA252ANVB B3T SN 1079361424 01 23

OUTPUT (kVA/kW)	VOLTAGE (V)	CURRENT (A)
258/206	480	310.3

CONTINUOUS DUTY S1 $\Delta T=125$ K/40 °C AMB.

COS φ	0.80	EXCITATION BRUSHLESS	
INSUL.	H	Full-load excit.	40.1V / 3.3A
IP	23W	ROT 1800 rpm	FREQ 60 Hz
PHASE	3	MASS 547.0 kg	ALT 1000 m

SYNCHRONOUS GENERATOR

TAG MODEL -GTA252ANVB-2BS

10171257



9180 0886

Front Bearing NU 318

Rear Bearing 6214 ZZ C3

Lubricated (F) 3000 h 41 g

Lubricated (R) h g

This motor(generator) was lubricated with grease POLYREX EM 103



ATENÇÃO

Use apenas graxa Mobil Polyrex EM 103 para o alternador.

O uso de outras graxas anula a garantia do fabricante.

WARNING

Use only Mobil Polyrex EM 103 grease for this alternator.

Use of other grease voids manufacturers warranty.

