ADMINISTRATIVE RECORD

R.H.S. Lee, Inc.

Application No. 0669-03 for Renewal

Located At: Various Temporary Sites, State of Hawaii

Temporary CSP No. 0669-01-CT

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Public Notice

Draft Permit

Draft Review Summary

Application
and
Supporting Information

0669-03
HAND DELIVERED
DEC 14 2021
CL for MR

R. H. S. LEE, INC.
96-1414 WAIHONA PLACE
PEARL CITY, HI 96782

TELEPHONE
BUSINESS OFFICE (808) 455-9026
DISPATCH OFFICE (808) 456-5988
FAX (808) 455-3850

SCANNED
CL AJN

TRANSMITTAL MEMORANDUM

	State of Hawaii		
To	Department of Health - CAB Office	Date:	12/14/2021
Address	2827 Waimano Home Road	Project:	RHS Lee, Inc.
	Hale Ola Building Room #130		
City	Pearl City, Hawaii 96782		Permit #0669-01-CT
Attention:		Email:	
		Phone:	

We are forwarding the following: X Attached ___ Under Separate Cover

☐ Drawings	☐ Material Submittals	☐ Payment Request
☐ Specifications	☐ Change Review	☐ Work Order
☐ Shop Drawings	☐ Change Proposal	☐ Forms
☐ Samples	☐ Change Order	☒ Other

	Copies		Date
	1	**Renewal Application for Temporary Covered Source Permit Permit #0669-01-CT**	
	1	**Check #032222 - Payable to Clean Air Special Fund - COV**	

Remarks:

by: MHHigaki

Received by: _____
Date: _____

Wade I Higaki
RHS Lee, Inc.

MD 12386

Application for a Renewal of
Temporary Covered Source Permit
No. 0669-01-CT
Expiry date: December 19, 2022
as required by HAR 11-60.1-101

FACILITY NAME:

250 TPH EXTEC IMPACT CRUSHING PLANT
AND 280 TPH EXTEC SCREENING PLANT
located at
Various Temporary Sites, State of Hawaii

OWNER:

R.H.S. LEE, INC.
96-1414 Waihona Place
Pearl City, HI 96782

December 2, 2021

PREPARED BY:

EMET SERVICES INC.
94-520 Ukee St., Ste.A
Waipahu, HI 96797

INTRODUCTION

This is an application for a renewal of temporary covered source permit no. 0669-01-CT for the 250 TPH Extec Impact Crusher with 440 HP Caterpillar diesel engine, and 280 TPH Extec Double Deck Screening Plant, owned and operated by R.H.S. Lee, Inc., 96-1414 Waihona Place, Pearl City, HI 96782.

This is a straight-forward permit renewal. There are no changes to equipment, operation limitations, standards, or any other existing permit conditions as indicated in permit no. 0669-01-CT, issued December 20, 2017, expiring December 19, 2022.

The 250 TPH Extec I-C13 Mobile Impact Crusher is self-propelled, equipped with tracks. The 440 HP Caterpillar diesel engine powering the crusher is therefore exempt pursuant to HAR 11-60.1-82(d)(4), which exempts internal combustion engines propelling mobile sources.

The 99 HP Deutz engine powering the 280 TPH self-propelled Extec Double Deck Screening Plant is an insignificant activity.

Equipment, engine, and location information are on file with the Department of Health, Clean Air Branch.

Request for alternate operating scenario:
The permittee may replace the diesel engine with another diesel engine of the same size or smaller, with the same or lower emissions should this become necessary due to a breakdown or major overhaul of the permitted engine.

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1. STANDARD PERMIT APPLICATION FORM S-1

File/Application No.: **0669-01-CT**

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: **R.H.S. LEE, INC.**

2. Facility Name (if different from the Company): **250 TPH EXTEC MOBILE IMPACT CRUSHER AND 280 TPH EXTEC MOBILE SCREENING PLANT**

3. Mailing Address: **96-1414 Waihona Place**

   City: **Pearl City** State: **HI** Zip Code: **96782**

   Phone Number: **(808) 455-9026**

4. Name of Owner/Owner's Agent: **Richard Lee**

   Title: **CEO** Phone: **(808) 455-9026**

   Mailing Address: **96-1414 Waihona Place**

   City: **Pearl City** State: **HI** Zip Code: **96782**

5. Plant Site Manager/Other Contact: **Richard Lee**

   Title: **CEO** Phone: **(808) 455-9026**

   Mailing Address: **96-1414 Waihona Place**

   City: **Pearl City** State: **HI** Zip Code: **96782**

6. Permit Application Basis: (Check One.)

   Initial Permit for a New Source — Initial Permit for an Existing Source

   X 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: **0669-01-CT**

8. Does the Proposed Source require a County Special Management Area Permit? Yes **X** No

9. Type of Source (Check One): X Covered Source — Covered and PSD Source

   Noncovered Source — Uncertain

10. Standard Industrial Classification Code (SICC), if known: **1442**

11. Proposed Equipment/Plant Location Address: **on file at the DOH, CAB**

    City: State: **HI** Zip Code:

    UTM Coordinates: **on file at the DOH, CAB**

12. General Nature of Business: **Stone Crushing**

13. Date of Planned Commencement of Construction or Modification: **n/a**

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

15. Type of Organization: X 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): **Lee** (First): **Richard** (MI):

Title: **CEO** Phone: **(808) 455-9026**

Mailing Address: **96-1414 Waihona Place**

City: **Pearl City** State: **HI** Zip Code: **96782**

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): **Richard Lee, CEO**

(Signature): Richard Lee Date: 12/14/21

COMPANY NAME: R.H.S. LEE, INC. FILE NO: 0669-01-CT

LOCATION: VARIOUS LOCATIONS, STATE OF HAWAII PAGE 1 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
		250 TPH EXTEC IMPACT CRUSHER		Fugitive Dust			On	File	At	N/A	N/A	N/A	N/A	N/A	N/A
		(Equipment information is On file at DOH, CAB)					Clean	Air	Branch						
		ACTIVITY			TSP #/HOUR	TSP TPY			PM10 #/HOUR	PM10 TPY	PM2.5 #/HOUR	PM2.5 TPY			
		Uncontrolled Primary Crushing			0.600	2.628			0.600	2.628	0.180	0.788			
		Uncontrolled Conv.Transfer Pts (4)			3.000	13.140			1.100	4.818	0.330	1.445			
		Uncontrolled Truck unloading			0.025	0.110			0.025	0.110	0.008	0.033			
		Total uncontrolled			3.625	15.878			1.725	7.556	0.518	2.266			
		Less Control 70%			2.538	11.115			1.208	5.289	0.363	1.586			
		Total Controlled			1.087	4.763			0.517	2.267	0.155	0.680			
		Uncontrolled Storage Piles			7.090	31.052			3.353	14.687	1.006	4.406			
		Uncontrolled Unpaved Roads			5.431	23.786			1.662	7.282	0.166	0.218			
		Total Uncontrolled			12.521	54.838			5.015	21.969	1.172	4.624			
		Less Control 70%			8.765	38.387			3.511	15.378	0.820	3.237			
		Total Controlled			3.756	16.451			1.504	6.591	0.352	1.387			

COMPANY NAME: R.H.S. LEE, INC. FILE NO: 0669-01-CT

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

(Make as many copies of this page as necessary)

EMISSIONS UNITS TABLE

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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
		280 TPH EXTEC SCREENING PLANT		Fugitive Dust			On	File	At	N/A	N/A	N/A	N/A	N/A	N/A
		(Equipment Information On file at DOH, CAB)					Clean	Air	Branch						
		ACTIVITY			TSP #/HOUR	TSP TPY			PM10 #/HOUR	PM10 TPY	PM2.5 #/HOUR	PM2.5 TPY			
		Uncontrolled Screening			7.000	30.660			2.436	10.670	0.731	3.201			
		Uncontrolled Conv.Transfer Pts (4)			3.360	14.717			1.232	5.396	0.370	1.619			
		Uncontrolled Truck unloading			0.028	0.123			0.028	0.123	0.008	0.037			
		Total uncontrolled			10.388	45.500			3.696	16.189	1.109	4.857			
		Less Control 70%			7.272	31.850			2.587	11.332	0.776	3.400			
		Total Controlled			3.116	13.650			1.109	4.857	0.333	1.457			
		Uncontrolled Storage Piles			7.940	34.779			3.756	16.449	1.127	4.935			
		Uncontrolled Unpaved Roads			6.082	26.641			1.862	8.155	0.186	0.279			
		Total Uncontrolled			14.022	61.420			5.618	24.604	1.313	5.214			
		Less Control 70%			9.815	42.994			3.933	17.223	0.919	3.650			
		Total Controlled			4.207	18.426			1.685	7.381	0.394	1.564			

File No.: **0669-01-CT**

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.

- 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
- Initial Covered Source Permit Application
- Temporary Covered Source Permit Application
- General Covered Source Permit Application
- X Application for a Covered Source Permit Renewal
- 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**
  - **Subchapter 5, Covered Sources**
  - **Subchapter 6, Fees for Covered 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**

Provide a statement that the source is in compliance and will continue to comply with all such requirements.

R.H.S. LEE 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

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.

Description of Remedial Action	of Completion
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:

Applicable Requirement	Effective Date	Currently in Compliance?
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:

Description of Proposed Action/Steps to Achieve Compliance	Expected Date of Achieving Compliance
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.

Description of Remedial Action	of Completion
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: (less than or equal to 6 months) Beginning Date:

   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): **Richard Lee, CEO**

(Signature): Richard Lee Date: 12/14/21

File No.: **0669-01-CT**

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;
- Temporary Covered Source Permit Application;
- General Covered Source Permit Application;

X Application for a Covered Source Permit Renewal; and

- 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): **Richard Lee, CEO**

(Signature): Richard Lee Date: 12/14/21

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: **250 TPH Extec Impact Crusher with 440 HP Caterpillar Diesel Engine, and 280 TPH Extec Screening Plant**

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**
  - **Subchapter 5, Covered Sources**
  - **Subchapter 6, Fees for Covered 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)?

      X YES ◊ NO

   b. If YES, will compliance be continuous or intermittent?

      X 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 11-60.1-101
Covered Source Permit Renewal Application

HAR 11-60.1-101 (a) (1) Company & Facility Information

For company and facility information please see Form S-1 on page 5.

HAR 11-60.1-101 (a) (2) Certification Statement

The responsible person herewith certifies that no changes have been made in the design or operation of the source as proposed in the initial and any subsequent covered source permit applications.

I certify that I have knowledge of the facts herein set forth, 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: Mr. Richard Lee, CEO

Signature: _____ Date: _____

The following equipment is listed on the existing permit no. 0669-01-CT and is to be permitted with this renewal application:

Permit no. 0669-01-CT, Attachment II, Section A, 1:

a. 250 TPH Mobile Crusher, Model No. Extec I-C13, Serial No. 10515 with attached conveyors;

b. 280 TPH Mobile Screen, Model No. Extec S-5, Serial No. 10622 with attached conveyors; and

c. Various water sprays.

HAR 11-60.1-101 (a) (3) Compliance Plan

Please see page 9 for the signed compliance plan.

HAR 11-60.1-101 (a) (4) Compliance Certification

Please see page 12 for the signed compliance certification.

HAR 11-60.1-101 (a) (5) Other Information

Exemption:
The 250 TPH Extec I-C13 Mobile Impact Crusher is self-propelled, equipped with tracks. The 440 HP Caterpillar diesel engine powering the crusher is therefore exempt pursuant to HAR 11-60.1-82(d)(4), which exempts internal combustion engines propelling mobile sources.

Diesel Engine Information:

MANUFACTURER	: CATERPILLAR
MODEL	: C-13
SERIAL NUMBER	: LGK02531
DESIGN CAPACITY	: 440 HP
FUEL TYPE	: Fuel Oil #2 (max. 0.015% sulfur by weight)
MAX. FUEL CONSUMPTION	: 22.7 gallons/hour

Insignificant Activity (as per HAR 11-60.1-82 (f)):
The 99 HP Deutz engine powering the 280 TPH self-propelled Extec Double Deck Screening Plant is an insignificant activity.

Two (2) diesel fuel tanks with capacities of less than 500 gallons each.

Equipment Information is on file at the Department of Health (DOH), Clean Air Branch (CAB).

Detailed Description of Processes and Products:

Standard Industrial Classification Code (SICC) : 1442

There are no changes to existing permitted processes and products.

Material to be processed consists of basalt rock or concrete.

The raw material is dumped into the grizzly feeder by an excavator. From the feeder it is moved directly into the impact crusher. All material is transported on conveyor belt #2 to a stockpile. The side-reject conveyor belt #1 is permanently bypassed.

Rebar and other metal is removed by a built-in magnet.

The Screen may be connected to the crusher or may operate independently.

Air Pollution Control & Estimate of Emissions:

There are no changes to existing air pollution control equipment & monitoring devices.

Pollutants from the facility are fugitive dust.

The 250 TPH Extec Impact Crushing Plant is equipped with a dust suppression system. Water spray nozzles are located at the crusher, the grizzly feeder, the transfer point to the side conveyor, and the discharge end of the main conveyor. There is also a hand-held sprayer at the operator platform.
Stockpiles, crushing area and truck access routes are controlled by a water truck. No changes have been made to the plant as submitted with the original permit application.

Details are on file with the DOH, CAB, under permit no. 0669-01-CT.

Maximum Potential Fugitive Dust (TSP) Emissions from plant before and after Control in tons/year (TPY):

Pollutant	Crusher	Screener	Total
TSP uncontrolled	**15.878**	**45.500**	**61.378**
TSP controlled	**4.763**	**13.650**	**18.413**
PM10 uncontrolled	**7.556**	**16.189**	**23.745**
PM10 controlled	**2.267**	**4.857**	**7.124**
PM2.5 uncontrolled	**2.266**	**4.857**	**7.123**
PM2.5 controlled	**0.680**	**1.457**	**2.137**

Maximum Potential Fugitive Dust (TSP) Emissions from Stockpiles and Unpaved Roads before and after Control in tons/year (TPY)

Pollutant	Crusher	Screener	Total
TSP uncontrolled	**54.838**	**61.420**	**116.258**
TSP controlled	**16.451**	**18.426**	**34.877**
PM10 uncontrolled	**21.969**	**24.604**	**46.573**
PM10 controlled	**6.591**	**7.381**	**13.972**
PM2.5 uncontrolled	**4.624**	**5.214**	**9.838**
PM2.5 controlled	**1.387**	**1.564**	**2.951**

Controlled fugitive plant emissions in tons per year:

Crusher Emissions and Trigger Levels (TPY)					
Pollutant	**Emissions (No Limits)**	**BACT Significant Levels**	**AERR Thresholds**	**DOH Levels**	**Wind Erosion And Vehicle Travel Emissions**
CO	0	100	1000	250	0
NO_X	0	40	100	25	0
SO_2	0	40	100	25	0
PM	**18.413**	25	-	25	**34.877**
PM10	**7.124**	15	100	25	**13.972**
PM2.5	**2.137**	10	100	-	**2.951**
VOC	0	40	100	25	0
HAPs	0	-	-	5	0

For detailed calculations, please refer to appendix B, Annual Emissions Calculations on page 24.

Typical Operating Schedules:

The plant does not operate on a typical schedule since it is employed on different job sites depending on job availability. Operation is irregular.

Once installed at a job site, the plant typically operates as follows:

8 Hours per day, 5 days per week

Length of operation per job varies from a few weeks to several months. Typically there are times when the plant sits idle.

When operating, the following production hours might be expected:
8 hours / day
40 hours / week
2080 hours / year

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
Subchapter 5, Covered Sources
Subchapter 6, Fees for Covered Sources
40 CFR Part 60, Standards of Performance for New Stationary Sources (NSPS)
Subpart A, General Provisions
Subpart OOO, Standards of Performance for Nonmetallic Mineral Processing Plants.

Compliance:

11-60.1-32 & 33:
Visible emissions and fugitive dust are controlled through the use of water sprays and water trucks or municipal water supply if available.
11-60.1-81 & 91:
The plant is subject to annual opacity testing, following EPA method #9.

Exemptions:

None, except for the Caterpillar C-13 diesel engine mentioned above.

Current Operational Limitations or Work Practices:

There shall be no operating hour restrictions for the plant covered under this permit.
The diesel engines shall be fired only on ULSD fuel oil no. 2 with a maximum sulfur content not to exceed 0.0015% by weight.

Request for alternate operating scenario:
The permittee may replace the diesel engine with another diesel engine of the same size or smaller, with the same or lower emissions should this become necessary due to a breakdown or major overhaul of the permitted engine.

Schedule for Construction or Modification:

Not applicable, this is a permit renewal and the plant covered under this permit is already operating.

Existing Covered Sources: Ambient Air Quality Impact Assessment:

There are only fugitive emissions of PM, PM10, and PM2.5. The DOH, CAB usually does not require any ambient air quality impact assessment for fugitive emissions. Since the diesel engine is exempt, there are no point emissions.

New Covered Sources: Ambient Air Quality Impact Assessment:

Not applicable, this is a permit renewal.

New Covered Sources: Requirements of 11-60.1, Subchapter 7:

Subchapter 7 applies to major sources only. This source is not a major source as defined in 11-60.1-131.

Emissions Trading:

Not applicable.

HAR 11-60.1-113 Application Fees for Covered Sources

HAR 11-60.1-113 (b) (4) (C) Renewal of a non-toxic temporary covered source

The application fee of $ 500.00 for a temporary covered source permit renewal is enclosed.

Check No 3222 dated 12/6/2021 made payable to:

CLEAN AIR SPECIAL FUND-COV

APPENDIX A

LOCATION & SITE MAPS

The present location of the plant is on file at the Department of Health, Clean Air Branch under permit no. 0669-01-CT.

APPENDIX B

POTENTIAL ANNUAL EMISSIONS CALCULATIONS

Potential Annual Fugitive Dust Emissions for 250 TPH Extec Impact Crushing Plant

Calculation Basis:

Maximum Processing rate : 250 TPH
Operating hours: 8760 hours/year
Emission Factors: AP 42 (11.19.2-2, 8/04, 13.2.4, 11/06, 13.2.2, 11/O6

Controlled Fugitive Emissions of Particulate Matter (TSP):

Activity	SCC	(lb/hr)	(tpy)
Primary Crushing uncontrolled	3-05-020-01	0.600	2.628
Conveyor Transfer Point uncontr. (4)	3-05-020-06	3.000	13.140
Truck unloading uncontrolled	3-05-020-32	0.025	0.110
Total uncontrolled		**3.625**	**15.878**
Less Control 70%		2.538	11.115
TOTAL CONTROLLED		**1.087**	**4.763**
Storage Piles uncontrolled		7.090	31.052
Unpaved Roads uncontrolled		5.431	23.786
Total uncontrolled		**12.521**	**54.838**
Less Control 70%		8.765	38.387
TOTAL CONTROLLED		**3.756**	**16.451**

Controlled Fugitive Emissions of Particulate Matter (PM10):

Activity	SCC	(lb/hr)	(tpy)
Primary Crushing uncontrolled	3-05-020-01	0.600	2.628
Conveyor Transfer Point uncontr. (4)	3-05-020-06	1.100	4.818
Truck unloading uncontrolled	3-05-020-32	0.025	0.110
Total uncontrolled		**1.725**	**7.556**
Less Control 70%		1.208	5.289
TOTAL CONTROLLED		**0.517**	**2.267**
Storage Piles uncontrolled		3.353	14.687
Unpaved Roads uncontrolled		1.662	7.282
Total uncontrolled		**5.015**	**21.969**
Less Control 70%		3.511	15.378
TOTAL CONTROLLED		**1.504**	**6.591**

Controlled Fugitive Emissions of Particulate Matter (PM2.5):

Activity	SCC	(lb/hr)	(tpy)
Primary Crushing uncontrolled	3-05-020-01	0.180	0.788
Conveyor Transfer Point uncontr. (4)	3-05-020-06	0.330	1.445
Truck unloading uncontrolled	3-05-020-32	0.008	0.033
Total uncontrolled		**0.518**	**2.266**
Less Control 70%		0.363	1.586
TOTAL CONTROLLED		**0.155**	**0.680**
Storage Piles uncontrolled		1.006	4.406
Unpaved Roads uncontrolled		0.166	0.218
Total uncontrolled		**1.172**	**4.624**
Less Control 70%		0.820	3.237
TOTAL CONTROLLED		**0.352**	**1.387**

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.

Potential Annual Fugitive Dust Emissions
for
280 TPH Extec Screening Plant

Calculation Basis:

Maximum Processing rate : 280 TPH
Operating hours: 8760 hours/year
Emission Factors: AP 42 (11.19.2-2, 8/04, 13.2.4, 11/06, 13.2.2, 11/O6

Controlled Fugitive Emissions of Particulate Matter (TSP):

Activity	SCC	(lb/hr)	(tpy)
Screening uncontrolled	3-05-020-01	7.000	30.660
Conveyor Transfer Point uncontr. (4)	3-05-020-06	3.360	14.717
Truck unloading uncontrolled	3-05-020-32	0.028	0.123
Total uncontrolled		**10.388**	**45.500**
Less Control 70%		7.272	31.850
TOTAL CONTROLLED		**3.116**	**13.650**
Storage Piles uncontrolled		7.940	34.779
Unpaved Roads uncontrolled		6.082	26.641
Total uncontrolled		**14.022**	**61.420**
Less Control 70%		9.815	42.994
TOTAL CONTROLLED		**4.207**	**18.426**

Controlled Fugitive Emissions of Particulate Matter (PM10):

Activity	SCC	(lb/hr)	(tpy)
Screening uncontrolled	3-05-020-01	2.436	10.670
Conveyor Transfer Point uncontr. (54)	3-05-020-06	1.232	5.396
Truck unloading uncontrolled	3-05-020-32	0.028	0.123
Total uncontrolled		**3.696**	**16.189**
Less Control 70%		2.587	11.332
TOTAL CONTROLLED		**1.109**	**4.857**
Storage Piles uncontrolled		3.756	16.449
Unpaved Roads uncontrolled		1.862	8.155
Total uncontrolled		**5.618**	**24.604**
Less Control 70%		3.933	17.223
TOTAL CONTROLLED		**1.685**	**7.381**

Controlled Fugitive Emissions of Particulate Matter (PM2.5):

Activity	SCC	(lb/hr)	(tpy)
Screening uncontrolled	3-05-020-01	0.731	3.201
Conveyor Transfer Point uncontr. (4)	3-05-020-06	0.370	1.619
Truck unloading uncontrolled	3-05-020-32	0.008	0.037
Total uncontrolled		**1.109**	**4.857**
Less Control 70%		0.776	3.400
TOTAL CONTROLLED		**0.333**	**1.457**
Storage Piles uncontrolled		1.127	4.935
Unpaved Roads uncontrolled		0.186	0.279
Total uncontrolled		**1.313**	**5.214**
Less Control 70%		0.919	3.650
TOTAL CONTROLLED		**0.394**	**1.564**

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.

Calculations of Emissions for Crushed Stone Processing Operations					
Client:	R.H.S. LEE INC				Date:
Facility:	250 TPH EXTEC IMPACT CRUSHER				10/9/2021
Permit No.:	0669-01-CT			JOB#	2110047

Annual Production Rate Calculations:				Annual Production (tpy)	Annual Production (cy/year)
INPUT FIELDS:		hrs/year	8760		
cy/hr	0	tons/hr	250		
		Transfer Points	4	2,190,000	0

Conversion rate "stone crushed" cy to ton = 1.35 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	1.350	5.913
Tertiary Crushing contr.	3-05-020-03	0.00120	0.300	1.314
Fines Crushing	3-05-020-05	0.03900	9.750	42.705
Fines Crushing contr.	3-05-020-05	0.00300	0.750	3.285
Screening	3-05-020-02,03	0.02500	6.250	27.375
Screening contr.	3-05-020-02,03	0.00220	0.550	2.409
Fines Screening	3-05-020-21	0.30000	75.000	328.500
Fines Screening contr.	3-05-020-21	0.00360	0.900	3.942
Conveyor Transfer Point	3-05-020-06	0.00300	0.750	3.285
Conv. Transfer Point contr.	3-05-020-06	0.00014	0.035	0.153
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:	4	lbs/hr per point	0.750	Total:	3
No of Points:	4	tons/year per poin	3.285	Total:	13.14

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:

Wind Erosion from Storage Piles (AP42, 13.2.4, 11/06):

Formula: E = k(0.0032) x [((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 (%

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

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 TSP (lb/hr)	Total TSP (tpy)
PM-10	0.013	(tpy)			
TSP	0.028	2,190,000		7.090	31.052
TOTAL TSP CONTROLLED (-70%)FOR STORAGE PILES				2.127	9.316
PM-10 UNCONTROLLED:		14.687	tons/year		

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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	0.600	2.628
*Primary Crushing contr.	3-05-020-01	0.00054	0.135	0.591
*Secondary Crushing	3-05-020-02	0.00240	0.600	2.628
*Secondary Crushing contr.	3-05-020-02	0.00054	0.135	0.591
Tertiary Crushing	3-05-020-03	0.00240	0.600	2.628
Tertiary Crushing contr.	3-05-020-03	0.00054	0.135	0.591
Fines Crushing	3-05-020-05	0.01500	3.750	16.425
Fines Crushing contr.	3-05-020-05	0.00120	0.300	1.314
Screening	3-05-020-02,03	0.00870	2.175	9.527
Screening contr.	3-05-020-02,03	0.00074	0.185	0.810
Fines Screening	3-05-020-21	0.07200	18.000	78.840
Fines Screening contr.	3-05-020-21	0.00220	0.550	2.409
Conveyor Transfer Point	3-05-020-06	0.00110	0.275	1.205
Conv. Transfer Point contr.	3-05-020-06	4.60E-05	0.012	0.050
Wet Drilling - Unfrag.Stone	3-05-020-10	8.00E-05	0.020	0.088
Truck unload - Fragm.Stone	3-05-020-31	1.60E-05	0.004	0.018
Truck unload - conv.crushed	3-05-020-32	0.00010	0.025	0.110

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:	4	lbs/hr per point	0.275	Total:	**1.100**
No of Points:	4	tons/year per poin	1.205	Total:	**4.818**

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:

Wind Erosion from Storage Piles (AP42, 13.2.4):

Formula: E = k(0.0032) x [((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 (%

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

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 (lb/hr)**	**Total PM-10 (tpy)**
PM-10	**0.013**	**(tpy)**			
TSP	**0.028**	**2,190,000**		**3.353**	**14.687**
PM-10 CONTROLLED (-70%)FOR STORAGE PILES				1.006	4.406

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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	**0.180**	**0.788**
Primary Crushing contr.	3-05-020-01	0.00016	0.041	0.177
Secondary Crushing*	3-05-020-02	0.00072	0.180	0.788
Secondary Crushing contr.	3-05-020-02	0.00016	0.041	0.177
Tertiary Crushing*	3-05-020-03	0.00072	0.180	0.788
Tertiary Crushing contr.	3-05-020-03	0.00016	0.041	0.177
Fines Crushing*	3-05-020-05	0.00450	1.125	4.928
Fines Crushing contr.	3-05-020-05	0.00036	0.090	0.394
Screening*	3-05-020-02,03	0.00261	0.653	2.858
Screening contr.	3-05-020-02,03	0.00022	0.056	0.243
Fines Screening*	3-05-020-21	0.02160	5.400	23.652
Fines Screening contr.*	3-05-020-21	0.00066	0.165	0.723
Conveyor Transfer Point*	3-05-020-06	0.00033	0.083	0.361
Conv. Transfer Point contr.	3-05-020-06	1.38E-05	0.003	0.015
Wet Drilling - Unfrag.Stone*	3-05-020-10	2.40E-05	0.006	0.026
Truck unload - Fragm.Stone*	3-05-020-31	4.80E-06	0.001	0.005
Truck unload - conv.crushed*	3-05-020-32	0.00003	**0.008**	**0.033**

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

Storage Piles

	Emission PM10	Emission PM2.5	
lbs/hour	3.353	**1.006**	(PM10 emissions x 0.3)
tons/year	14.687	**4.406**	(PM10 emissions x 0.3)

Un-Controlled Emission Calculations for multiple Transfer Points:

No of Points:	4	lbs/hr per point	8.25E-02	Total:	**0.330**
No of Points:	4	tons/year per point	3.61E-01	Total:	**1.445**

Calculations of PM30 (TSP) Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	250 TPH EXTEC IMPACT CRUSHER				
Date:	10/9/2021	PERMIT NO.:	0669-01-CT	JOB #	2110047

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) 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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM-30**	**4.562**

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
250	8760	21	0.1		**10428.6**

Uncontrolled PM30 in tons per year for unpaved roads:	**23.786**
Controlled PM30 (tpy) for unpaved roads (-70%):	**7.136**
Uncontrolled PM30 in lbs/hr	**5.431**
Controlled PM30 in lbs/hr	**1.629**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

Calculations of PM10 Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	250 TPH EXTEC IMPACT CRUSHER				
Date:	10/9/2021	PERMIT NO.	0536-01-CT	JOB #	2110047

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**		
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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM-10**	**1.396**

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
250	8760	21	0.1		**10428.6**

Uncontrolled PM10 in tons per year for unpaved roads:	**7.282**
Controlled PM10 (tpy) for unpaved roads (-70%):	**2.184**
Uncontrolled PM10 in lbs/hr	**1.662**
Controlled PM10 in lbs/hr	**0.499**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

Calculations of PM2.5 Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	250 TPH EXTEC IMPACT CRUSHER				
Date:	10/9/2021	PERMIT NO.:	0669-01-CT	JOB #	2110047

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**		
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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM2.5**	**0.140**

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
250	8760	21	0.1		**10428.6**

Uncontrolled PM30 in tons per year for unpaved roads:	**0.728**
Controlled PM30 (tpy) for unpaved roads (-70%):	**0.218**
Uncontrolled PM30 in lbs/hr	**0.166**
Controlled PM30 in lbs/hr	**0.050**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

Calculations of Emissions for Crushed Stone Processing Operations					
Client:	R.H.S. LEE INC				Date:
Facility:	280 TPH EXTEC SCREENING PLANT				10/9/2021
Permit No.:	0669-01-CT			JOB#	2110047

Annual Production Rate Calculations:				Annual Production (tpy)	Annual Production (cy/year)
INPUT FIELDS:		hrs/year	8760		
cy/hr	0	tons/hr	280		
		Transfer Points	4	2,452,800	0

Conversion rate "stone crushed" cy to ton = 1.35 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	1.512	6.623
Tertiary Crushing contr.	3-05-020-03	0.00120	0.336	1.472
Fines Crushing	3-05-020-05	0.03900	10.920	47.830
Fines Crushing contr.	3-05-020-05	0.00300	0.840	3.679
Screening	3-05-020-02,03	0.02500	**7.000**	**30.660**
Screening contr.	3-05-020-02,03	0.00220	0.616	2.698
Fines Screening	3-05-020-21	0.30000	84.000	367.920
Fines Screening contr.	3-05-020-21	0.00360	1.008	4.415
Conveyor Transfer Point	3-05-020-06	0.00300	0.840	3.679
Conv. Transfer Point contr.	3-05-020-06	0.00014	0.039	0.172
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:	4	lbs/hr per point	0.840	Total:	**3.36**
No of Points:	4	tons/year per poin	3.679	Total:	**14.717**

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:

Wind Erosion from Storage Piles (AP42, 13.2.4, 11/06):

Formula: E = k(0.0032) x [((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 (%

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

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 TSP (lb/hr)	Total TSP (tpy)
PM-10	0.013	(tpy)			
TSP	0.028	2,452,800		**7.940**	**34.779**
TOTAL TSP CONTROLLED (-70%)FOR STORAGE PILES				2.382	10.434
PM-10 UNCONTROLLED:		16.449	tons/year		

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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	0.672	2.943
*Primary Crushing contr.	3-05-020-01	0.00054	0.151	0.662
*Secondary Crushing	3-05-020-02	0.00240	0.672	2.943
*Secondary Crushing contr.	3-05-020-02	0.00054	0.151	0.662
Tertiary Crushing	3-05-020-03	0.00240	0.672	2.943
Tertiary Crushing contr.	3-05-020-03	0.00054	0.151	0.662
Fines Crushing	3-05-020-05	0.01500	4.200	18.396
Fines Crushing contr.	3-05-020-05	0.00120	0.336	1.472
Screening	3-05-020-02,03	0.00870	**2.436**	**10.670**
Screening contr.	3-05-020-02,03	0.00074	0.207	0.908
Fines Screening	3-05-020-21	0.07200	20.160	88.301
Fines Screening contr.	3-05-020-21	0.00220	0.616	2.698
Conveyor Transfer Point	3-05-020-06	0.00110	0.308	1.349
Conv. Transfer Point contr.	3-05-020-06	4.60E-05	0.013	0.056
Wet Drilling - Unfrag.Stone	3-05-020-10	8.00E-05	0.022	0.098
Truck unload - Fragm.Stone	3-05-020-31	1.60E-05	0.004	0.020
Truck unload - conv.crushed	3-05-020-32	0.00010	**0.028**	**0.123**

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:	4	lbs/hr per point	0.308	Total:	**1.232**
No of Points:	4	tons/year per poin	1.349	Total:	**5.396**

EMISSION CALCULATIONS FOR STORAGE PILES ONLY:

Wind Erosion from Storage Piles (AP42, 13.2.4):

Formula: E = k(0.0032) x [((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 (%

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

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 (lb/hr)	Total PM-10 (tpy)
PM-10	0.013	(tpy)		
TSP	0.028	2,452,800	**3.756**	**16.449**
PM-10 CONTROLLED (-70%)FOR STORAGE PILES			1.127	4.935

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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	0.202	0.883
Primary Crushing contr.	3-05-020-01	0.00016	0.045	0.199
Secondary Crushing*	3-05-020-02	0.00072	0.202	0.883
Secondary Crushing contr.	3-05-020-02	0.00016	0.045	0.199
Tertiary Crushing*	3-05-020-03	0.00072	0.202	0.883
Tertiary Crushing contr.	3-05-020-03	0.00016	0.045	0.199
Fines Crushing*	3-05-020-05	0.00450	1.260	5.519
Fines Crushing contr.	3-05-020-05	0.00036	0.101	0.442
Screening*	3-05-020-02,03	0.00261	**0.731**	**3.201**
Screening contr.	3-05-020-02,03	0.00022	0.062	0.272
Fines Screening*	3-05-020-21	0.02160	6.048	26.490
Fines Screening contr.*	3-05-020-21	0.00066	0.185	0.809
Conveyor Transfer Point*	3-05-020-06	0.00033	0.092	0.405
Conv. Transfer Point contr.	3-05-020-06	1.38E-05	0.004	0.017
Wet Drilling - Unfrag.Stone*	3-05-020-10	2.40E-05	0.007	0.029
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	**0.008**	**0.037**

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

Storage Piles

	Emission PM10	Emission PM2.5	
lbs/hour	3.756	**1.127**	(PM10 emissions x 0.3)
tons/year	16.449	**4.935**	(PM10 emissions x 0.3)

Un-Controlled Emission Calculations for multiple Transfer Points:

No of Points:	4	lbs/hr per point	9.24E-02	Total:	**0.370**
No of Points:	4	tons/year per point	4.05E-01	Total:	**1.619**

Calculations of PM30 (TSP) Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	280 TPH EXTEC SCREENING PLANT				
Date:	10/9/2021	PERMIT NO.:	0669-01-CT	JOB #	2110047

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) 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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM-30**	**4.562**

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
280	8760	21	0.1		**11680.0**

Uncontrolled PM30 in tons per year for unpaved roads:	**26.641**
Controlled PM30 in lbs/hr	**7.992**
Uncontrolled PM30 in lbs/hr	**6.082**
Controlled PM30 in lbs/hr	**1.825**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

Calculations of PM10 Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	280 TPH EXTEC SCREENING PLANT				
Date:	10/9/2021	PERMIT NO.:	0536-01-CT	JOB #	2110047

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**		
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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM-10**	**1.396**

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
280	8760	21	0.1		**11680.0**

Uncontrolled PM10 in tons per year for unpaved roads:	**8.155**
Controlled PM10 (tpy) for unpaved roads (-70%):	**2.447**
Uncontrolled PM10 in lbs/hr	**1.862**
Controlled PM10 in lbs/hr	**0.559**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

Calculations of PM2.5 Emissions for Unpaved Roads					
Client:	R.H.S. LEE INC.				
Facility:	280 TPH EXTEC SCREENING PLANT				
Date:	10/9/2021	PERMIT NO.:	0669-01-CT	JOB #	2110047

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**		
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**		**Result:**
S (mean vehicle speed) (mph)	**10**		**(lb/VMT)**
p (# of days with 0.01" of rain/year)*	**85**	**PM2.5**	**0.140**

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
280	3000	21	0.1		**4000.0**

Uncontrolled PM30 in tons per year for unpaved roads:	**0.279**
Controlled PM30 (tpy) for unpaved roads (-70%):	**0.084**
Uncontrolled PM30 in lbs/hr	**0.186**
Controlled PM30 in lbs/hr	**0.056**

***Station:(511918) Honolulu Obsry 702.2 (1962-2012)**

APPENDIX C

EQUIPMENT INFORMATION & DATA

Equipment information is on file at the Department of Health, Clean Air Branch under permit no. 0669-01-CT.