

Temporary Covered Source Permit (CSP) No. 0779-01-CT Review
Initial Application No. 0779-01

APPLICANT: Bacon Universal Company, Inc.

RESPONSIBLE OFFICIAL:/POC Mr. Caroll M. Nielsen
Vice President - Operations
(808) 839-7202

MAILING ADDRESS / INITIAL LOCATION 918 Ahua Street
Honolulu, HI 96819

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Honolulu, HI 96819

CONSULTANT Mr. Fred Peyer
CFM Environmental LLC
95-109 Waikalani Drive
Mililani, HI 96789

SIC 1429

PROPOSED PROJECT:

The subject application is for an initial temporary covered source permit. The application seeks to permit a 265 ton per hour portable jaw crusher powered by a 192 hp diesel engine. The equipment is fueled with fuel oil no. 2 with a sulfur content of 0.015%. The applicant has proposed an limiting the diesel engine to 2,500 hours of operation per rolling twelve-month (12-month) period. The Standard Industrial Classification Code (SICC) for this facility is 1429 - Crushed and Broken Stone, Not Elsewhere Classified.

Equipment Description:

265 tph Komatsu Jaw Crusher Model BR 380 JG-1, s/n 1382 with 192 hp Komatsu diesel engine Model SAA6D125E-2, s/n 26394575 fired with Diesel fuel No. 2, 9.9 gallons per hour.

Air Pollution Controls:

Air pollution control consists of a water spray nozzle located at the main conveyor belt. Therefore, a control efficiency of 70% will be credited at each emission point after the material has been crushed.

Initial Equipment Location:

The initial location for the equipment is at 919 Ahua Street. The initial location will only be used for equipment storage. Once the equipment is sold, ownership of the permit will be transferred to the new owner, and the equipment will be relocated.

APPLICABLE REQUIREMENTS:

Hawaii Administrative Rules (HAR) Title 11 Chapter 59
Hawaii Administrative Rules (HAR) Title 11 Chapter 60.1
 Subchapter 1 - General Requirements
 Subchapter 2 - General Prohibitions
 11-60.1-31 Applicability
 11-60.1-32 Visible Emissions

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- 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,
 - 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

New Source Performance Standards (NSPS)

40 CFR Part 60, Subpart OOO - *Standards of Performance for Nonmetallic Mineral Processing Plants* is applicable since the manufacture date of the equipment is after August 1983 and the crusher has a maximum capacity greater than 150 tph.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REQUIREMENTS:

Pursuant to HAR §11-60.1-81(14), the application of BACT is required for all pollutants that have the potential to emit or increase emissions above significant amounts considering any limitations, enforceable by the director, on the covered source to emit a pollutant.

To determine what constitutes a significant amount, the definition of “significant” listed in HAR §11-60.1-1 is used. Pursuant to the definition, a “significant” amount is a rate of emissions that would equal or exceed an of the following pollutant and emission rates:

Pollutant	Significant Level (tpy)	Calculated Emissions (tpy)
Carbon Monoxide	100	68.97
Nitrogen Oxides	40	13.08
Sulfur dioxide	40	18.33
PM	25	2.93
PM ₁₀	15	2.93
Ozone	40 of VOC	1.08
Lead	0.6	0
Asbestos	0.007	0
Beryllium	0.0004	0
Mercury	0.1	0
Vinyl Chloride	1	0
Fluorides	3	0
Sulfuric acid mist	7	0
Total reduced sulfur	10	0
Reduced sulfur compounds	10	0

Since the significant level was not exceeded for any of the listed pollutants, a BACT analysis is not required.

NON-APPLICABLE REQUIREMENTS:

40 CFR Part 60, Subpart IIII – *Standards of Performance for Stationary Compression Ignition Internal Combustion Engines*

Subpart IIII is not an applicable requirement pursuant to 40 CFR §60.4200, which states:

“The provisions of this subpart are applicable to manufacturers, owners, and operators of stationary compression ignition (CI) internal combustion engines...”

The diesel engines do not remain in a single location on a permanent basis, as indicated by the temporary noncovered source permit. Therefore the diesel engines are not subject to New Source Performance Standards for Stationary Compression Reciprocating Internal Combustion Engines.

40 CFR Part 63, Subpart ZZZZ – *National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines*

The diesel engines are not subject to 40 CFR 63, Subpart ZZZZ due to the fact that they are nonroad engines. Nonroad engines are exempt from NESHAPS regulation pursuant to 40 CFR §63.6585, which states:

“A stationary RICE is any internal combustion engine which uses reciprocating motion to convert heat energy into mechanical work and which is not mobile. Stationary RICE differs from mobile RICE in that a stationary RICE is not a non-road engine as defined in 40 CFR 1068.30, and is not used to propel a motor vehicle or a vehicle used solely for competition.”

Pursuant to 40 CFR §1068.30 a non-road engine is defined as:

“Nonroad engine means:

- (1) Except as discussed in paragraph (2) of this definition, a nonroad engine is an internal combustion engine that meets any of the following criteria:
 - (i) It is (or will be) used in or on a piece of equipment that is self-propelled or serves a dual purpose by both propelling itself and performing another function (such as garden tractors, off-highway mobile cranes and bulldozers).
 - (ii) It is (or will be) used in or on a piece of equipment that is intended to be propelled while performing its function (such as lawnmowers and string trimmers).
 - (iii) By itself or in or on a piece of equipment, it 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) An internal combustion engine is not a nonroad engine if it meets any of the following criteria:
 - (i) The engine is used to propel a motor vehicle, an aircraft, or equipment used solely for competition.
 - (ii) The engine is regulated under 40 CFR Part 60, (or otherwise regulated by a federal New Source Performance Standard promulgated under section 111 of the Clean Air Act (42 U.S.C. 7411)).
 - (iii) The engine otherwise included in paragraph (1)(iii) of this definition remains or will remain at a location for more than twelve (12) consecutive months or a shorter period of time for an engine located at a seasonal source. A location is any single site at a

building, structure, facility, or installation. Any engine (or engines) that replaces an engine at a location and that is intended to perform the same or similar function as the engine replaced will be included in calculating the consecutive time period. An engine located at a seasonal source is an engine that remains at a seasonal source during the full annual operating period of the 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. See §1068.31 for provisions that apply if the engine is removed from the location.”

The engine is portable or transportable, is not used to propel a motor vehicle, an aircraft, or equipment used solely for competition, is not regulated under 40 CFR 60, and will not remain at a location for more than twelve (12) consecutive months.

There are no applicable NESHAPS regulations for screens.

PREVENTION OF SIGNIFICANT DETERIORATION (PSD):

PSD applies to new stationary sources located in an attainment area which emit or have the potential to emit 250 TPY (or 100 TPY for 28 named source categories) of any regulated pollutant, to a major stationary source making a major modification involving a significant net emissions increase (e.g., 15 tons per year PM₁₀ [HAR 11-60.1-1]), or to a non-major source undergoing a modification that is major by itself. Since the proposed facility is not classified as one of the source categories with a 100 ton per year PSD trigger, the major stationary source cutoff is 250 tons per year. PSD applicability for CO₂ is determined by calculating the equivalent CO₂ emissions (CO₂e) generated by the facility. CO₂e emissions in excess of 100,000 tons per year require a PSD review.

The CO₂e levels were determined by utilizing EPA’s Landfill Gas Emissions Model (LandGEM) program. For conservatism, the peak year of emissions, as determined by LandGEM, was used in determining the emission amounts. The equivalent CO₂ emission amounts are presented in the following table:

Greenhouse Gas Emissions Summary

Type	Total CO ₂ e (MTPY)	Total CO ₂ e (TPY)
CO ₂ e(CO ₂)	253	279
CO ₂ e(CH ₄)	0.22	0.24
CO ₂ e(N ₂ O)	0.64	0.70
total	254	280

Notes:

1. Diesel engine permitted to use fuel oil 2 .
2. Global warming potentials obtained from 40 CFR Part 98, Subpart A, Table A-1.
3. Default CO₂ emission factors and High Heat Values obtained from 40 CFR Part 98, Subpart C. Table C-1.
4. Default CH₄ and N₂O emission factors obtained from 40 CFR Part 98, Subpart C. Table C-2.

CO₂e emissions are less than 100,000 tons per year, and the remaining criteria and HAP emissions from the engine and crusher do not have a pollutant that exceeds 250 tons per year, 10 tons of any individual HAP or 25 tons total HAPs, so a PSD review is not required.

Compliance Assurance Monitoring (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, 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 greater than the major source level [>100 tpy]; and (5) not otherwise be exempt from CAM. CAM is not applicable to the plant since item 1 does not apply.

Consolidated Emissions Reporting Rule (CERR) is not applicable because emissions from the facility are less than reporting levels pursuant to 40 CFR 51, Subpart A (see **Table 1**).

Table 1 - CERR

Pollutant	Facility Emissions (tpy)	Continuous Emissions (tpy) ^a	CERR Triggering Levels (tpy)		Internal Reporting Threshold (tpy)
			1-yr Reporting Cycle (Type A Sources)	3-yr Reporting Cycle (Type B Sources)	
VOC	0.09	0.33	≥ 250	≥ 100	≥25
PM ₁₀	10.72	45.14	≥ 250	≥ 100	≥25
NO _x	1.42	5.99	≥ 2,500	≥ 100	≥25
SO _x	0.09	3.05	≥ 2,500	≥ 100	≥25
CO	0.20	0.84	≥ 2,500	≥ 1,000	≥250
HAPs (total)	0.11	0.46	n/a	n/a	≥5

^a Emissions @ 8,760 hours per year.

Internal reporting is required for the facility although the internal reporting threshold is not exceeded because the facility is a covered source. The annual emissions reporting will also help in verifying compliance with the annual operational limits.

Synthetic Minor Applicability

The facility is not a synthetic minor source because the facility would not be a major source (>100 tpy) if operated continuously (8,760 hr/yr) at maximum capacity. Refer to table 1 for continuous emission estimates.

Insignificant Activities/Exemptions:

None

Alternative Operating Scenarios:

The permit contains an alternate operating scenario for the replacement of the diesel engine, subject to the following conditions:

1. The permittee may replace the diesel engine with a temporary diesel engine if repair work reasonably warrants removal (i.e., equipment failure, engine overhaul, or any other major problems requiring maintenance of the engine for efficient operation) of the diesel engine, provided the following provisions are adhered to:
 - a. A written request is submitted and approved by the Department of Health prior to exchanging the diesel engine with a temporary replacement engine.
 - b. The temporary replacement engine has equal or lower emissions with similar stack

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- parameters.
- c. The temporary replacement engine complies with all applicable conditions required for the existing equipment including all operating restrictions and emission limits.
 - d. Written notification for returning the original engine to service is submitted to the Department of Health.
 - e. The diesel engine shall be repaired and returned to service in a timely manner.

Project Emissions:

The emission estimates were calculated using the most conservative emission estimates. Emissions from crushing were determined using AP-42, sections 11.19.2, Crushed Stone Processing (8/04), 13.2.4, Aggregate handling and Storage Piles, and 13.2..2, Unpaved Roads. Hazardous Air Pollutant emissions factors for the diesel engine were obtained from AP-42 section 3.3, Gasoline and Diesel Industrial Engines. Criteria pollutant emission factors and fuel consumption data were provided by the manufacturer.

A summary of the emissions from the permitted equipment is shown in the following table.

Criteria Pollutant	Emissions			
	lb/hr	g/s	Limited ¹ (TPY)	Max (TPY)
SO ₂	0.6973	0.088	0.73	3.05
NO ₂	1.367	0.172	1.42	5.99
CO	0.192	0.024	0.20	0.84
PM ₁₀				
Diesel Engine	0.068	0.009	0.07	0.30
Crusher	1.46	0.184	1.52	6.41
Unpaved Roads	8.78	1.106	9.13	38.44
TOTAL PM ₁₀	10.31	1.30	10.72	45.14

Hazardous Air Pollutant Emissions (from Diesel Engine)

HAP	Emissions			
	lb/hr	g/s	Limited ¹ (TPY)	Max (TPY)
Aldehydes	9.70e-02	1.22e-02	1.01e-01	4.25e-01
Benzene	1.29e-03	1.63e-04	1.34e-03	5.66e-03
Toluene	5.67e-04	7.14e-05	5.90e-04	2.48e-03
Xylenes	3.95e-04	4.98e-05	4.11e-04	1.73e-03
Propylene	3.58e-03	4.51e-04	3.72e-03	1.57e-02
1,3 Butadiene	5.42e-05	6.83e-06	5.64e-05	2.37e-04
Formaldehyde	1.64e-03	2.06e-04	1.70e-03	7.16e-03
Acetaldehyde	1.06e-03	1.34e-04	1.11e-03	4.66e-03
Acrolein	1.28e-04	1.62e-05	1.33e-04	5.62e-04
Total PAH	2.33e-04	2.93e-05	2.42e-04	1.02e-03
Total			0.11	0.46

¹ Limited to 2,500 hours of operation on a rolling twelve-month (12-month) basis

For detailed calculations, refer to the attached emissions spreadsheets.

AIR QUALITY ASSESSMENT:

An ambient air quality analysis was not done on the subject equipment because it is not required for temporary sources.

Other Issues:

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The equipment to be permitted will be sold by Bacon Universal upon issuance of the permit. Therefore, after the equipment is transferred, the new permittee needs to be made aware of all permit conditions, but especially the condition regarding the initial performance test, since it has to be done within one hundred eighty (180) days of equipment startup. There are no allowances on the regulatory language for delaying testing or waiving the initial performance test requirement.

Significant New Permit Conditions:

None

Conclusion and Recommendation:

The facility is in compliance with all State and Federal laws, rules, regulations, and standards with regards to air pollution. Recommend issuance of temporary covered source permit.

Kevin Kihara
May 10, 2013