

COVERED SOURCE APPLICATION REVIEW

Permit Number: 0454-01-C

Modification-Renewal Application No. 0454-02

Applicant: Edwin DeLuz Trucking and Gravel, LLC

Facility: 750 tph Stone Quarrying and Processing Plant
w/ 1390 hp diesel engine generator (DEG)

Located At: Kapo'aula, Hamakua, TMK (3) 4-07-07, Portion of 11

UTM-Coordinates: Zone 5, 233,560 m E, 2,218,847 m N, NAD 83

Standard Industrial Classification Code (SICC): 1429 Crushed and Broken Stone

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Modification

The modification consists of DeLuz Trucking and Gravel:

1. Proposing to add a Vibrating Eljay 4 ft x 14 ft Two-Deck Screen, serial no. 451, and three conveyors;
2. Requesting to add an "alternate operating scenario" for the diesel engine generator. The alternate operating scenario allows the permittee to replace any inoperable diesel engine or the diesel engine generator with a temporary replacement unit of the same or smaller size for efficient operation, until the original engine is operable again; and

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Requesting to re-word Attachment II.5.d.

From: A water truck or tank be maintained and utilized on site at the stockpiles, on the roadways, and throughout the work yard to minimize fugitive dust.

To: A water truck shall be utilized on site as necessary, at the stockpiles, on the roadways, and throughout the work yard to minimize fugitive dust.

Equipment Description and Specifications

{Note: *Items within curly brackets are exempt from permit itemization}

<u>Equipment</u>	<u>Description</u>
{loader* {grizzly feeder*	front end CAT 980C, 6.75 cy scoop;} Cedarapids vibrating model 52" x 17", serial no. 46745, maximum (max) capacity (cap) unknown);
1. jaw crusher	Cedarapids primary, model 3648 (36"x48"), serial no. 42694, max cap 750 tph;
2. cone crusher	Simons secondary, model 4-1/4" short head (SH) with screen, serial no. C41237 H.O. #H-1583. Screen size 6' x 16', max cap unknown manufactured date unknown;
3. screen	Eljay triple deck vibrating model no. FSG 6203-32, serial no. 34C1194. Screen size 6' x 20', max capacity unknown;
4. impact crusher	Eljay vertical shaft tertiary model 2100 VBD, serial no. 28B0294, max capacity 350 tph, manufacturers date unknown
5. various conveyors	
6. spray nozzles	10 water spray locations (initial amount of spray locations may be decreased in future if emissions are minimal), water pump is fed by 45 psi water pump or by city water;
7. generator	diesel engine, 1390 hp Caterpillar model 3512D1, serial no. 24Z00657, no. 2 diesel oil w/ < 0.5% sulfur content, fuel consumption 79.69 gal/hr;

PROPOSED

- | | | |
|--|-----------------------------|--|
| | {fuel tank*
{water tank* | portable 300 gal diesel}
portable 12,000 gal} |
|--|-----------------------------|--|
8. screen Vibrating Eljay 4 ft x 14 ft Two-Deck Screen, serial no. 451, and three conveyors;

Note: The above is the basic crushing set up. The water spray system will be in full operation at all times during any crushing operation (except for rainy days or another situation where fugitive dust is controlled). At no time will emissions be greater than the above given set up.

For background information see initial review in "Source Information" section of the Edwin DeLuz file folder.

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

§11-60.1-34 Motor Vehicles

§11-60.1-38 Sulfur Oxides from Fuel Combustion

§11-60.1-39 Storage of Volatile Organic Compounds

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

Subchapter 8 Standards of Performance for Stationary Sources

§11-60.1-161 New Source Performance Standards

Subchapter 9, Hazardous Air Pollutant Sources

Subchapter 10, Field Citations

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

Standards of Performance for New Stationary Sources [also known as New Source Performance Standards (NSPS)]

Applicable. A portable crushed stone plant, that commences construction, reconstruction, or modification after August 31, 1983, with a capacity of 150 tons per hour or greater, is subject to the requirements of Title 40 Code of Federal Regulations Part 60 Subpart OOO Standards of Performance for Nonmetallic Mineral Processing Plants. Fixed sand and stone plants with capacities of 25 tph or greater are subject to the same provisions. The maximum capacity of the initial crusher(s) at this Stone Quarrying and Processing Plant is greater than 150 tph. All conditions as specified in Subpart OOO apply to this facility.

Synthetic Minor

Refers to sources which have the potential to emit greater than 100 ton per year of a regulated air pollutant, but where limits are proposed to reduce emissions below 100 ton per year. A synthetic minor source is a potentially major source but is made a noncovered source or a non major covered source through federally enforceable permit conditions (e.g., limiting the facility's hours of operation, limiting the facility's production rate, or employing air pollution control devices). Based on the maximum potential of 8,760 hours per year, and the limited hours of operation, this stone crushing plant is a synthetic minor.

Non-Applicable Requirements

Compliance Assurance Monitoring (CAM)

Part 64 of the CFR for large emission (major) sources that rely on air pollution control devices to achieve compliance. Applicability of the CAM Rule is determined on a pollutant specific basis for each affected emission unit. Each determination is based upon a series of evaluation criteria. In order for a source to be subject to CAM, each source must:

1. Be located at a major stationary source per Title V of the Clean Air Act Amendments of 1990; No.
2. Be subject to federally enforceable applicable requirements; Yes.
3. Have pre-control device potential emissions that exceed applicable major source thresholds; No.
4. Be fitted with an "active" air pollution control device; No. and
5. Not be subject to certain regulations that specifically exempt it from CAM. Yes.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant. This source does not exceed 100 tpy of PM and is not a major source. This stone processing plant does not have any active pollution control devices except for their water spray system to minimize their fugitive emissions. Water sprinklers are not pollution control devices applicable to CAM. CAM is not applicable.

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Consolidated Emission Reporting Rule (CERR)

40 CFR Part 51, Subpart A-Emissions Inventory Reporting Requirements, determines CERR based on the emissions of each air pollutant from any individual point within the facility that emits at the CERR triggering levels as shown in the table below:

Pollutant	Screen Mod (tpy)	Plant Emissions (tpy)	CERR Annual Inventory Trigger Levels Type A/B Point Source (tpy)	Significant Levels (tph)	DOH Facility Trigger Levels (tpy)
NO _x	-	36	2,500 / 100	40	25
SO _x	-	6	2,500 / 100	40	25
CO	-	10	2,500 / 100	100	250
PM ₁₀	12	30	250 / 100	15	25
PM _{2.5}	4	10	250 / 100		25
VOC	-	0.15	250 / 100	40	25
Pb	N/A	N/A	5	0.6	0.6

PM_{2.5} is 0.15 of PM, AP-42, Appendix B, Table B.2.2. Category 3.

This facility does not have any individual emission points that emits at the CERR 1 year triggering levels. In-house, DOH reporting will be required (NO_x is greater than 25 tpy and PM₁₀ is greater than 25) but will not be input into the AIRS database.

National Emission Standards for Hazardous Air Pollutants for Source Categories (NESHAPS)

Pursuant to section 112 of the Clean Air Act (CAA), 40 CFR Part 61 lists the substances which have been designated as HAPs. Under this subpart, NESHAPS is not applicable because stone processing does not emit any referenced HAPs.

MACT Requirements

Title 40 CFR Part 63-National Emission Standards for Hazardous Air Pollutants for Source Categories. Maximum Achievable Control Technology (MACT) means the maximum degree of reduction in emissions of the hazardous air pollutants (HAPs), on a case-by-case basis, taking into consideration the cost of achieving such emission reduction and any non air quality health and environmental impacts and energy requirements that is deemed achievable. There are currently no MACT standards listed

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in the Code of Federal Regulations (CFR) for stone crushers or diesel engine operations. This source is not subject to MACT.

Prevention of Significant Deterioration (PSD)

PSD review applies to new major stationary sources and major modifications to these types of sources as listed and defined in HAR Title 11, Chapter 60.1, Subchapter 7. Annual maximum potential emissions at 8,760 hours per year without the water spray show that the facility is a potential major source. But annual emissions at 2080 hours are less than 70 ton/year. Hence, PSD review is not required.

BACT Requirements

Best Available Control Technology (BACT) analysis applies to new and modified sources if the net increase in pollutant emissions exceed "significant levels" as defined in HAR §11-60.1-1, considering any limitations, enforceable by the Department of Health, on the source to emit a pollutant. BACT is an emissions limitation based on the maximum degree of reduction for each pollutant, on a case-by-case basis, the applicant eliminates or supports step-by-step pollution control options, beginning at the top of a list of best available pollution control technology, taking into account:

- (1) Energy;
- (2) Environmental; and
- (3) Economic impacts and other costs, if achievable through application of production processes or available methods, systems, and techniques, including fuel cleaning or treatment or innovative fuel combustion techniques for control of the pollutant.

See project emissions below, for individual and total plant emissions. The calculated potential emissions for the added double-deck screen, does not exceed the "significant level". BACT is not required for his stone crushing plant.

MACT Requirements

Maximum Achievable Control Technology (MACT) means the maximum degree of reduction in emissions of the hazardous air pollutants (HAPs), on a case-by-case basis, taking into consideration the cost of achieving such emission reduction and any non air quality health and environmental impacts and energy requirements, that is deemed achievable. This source is not subject to MACT as the facility is not a major point or area source of HAPs, referenced to Title 40 Code of Federal Regulations Part 63- National Emission Standards for Hazardous Air Pollutants for Source Categories.

Standards of Performance for Stationary Compression Ignition Internal Combustion Engines (CI-ICE)

40 CFR Part 60, Subpart IIII, applies to any stationary internal combustion engine, such as diesel engines (DE), including reciprocating or rotary, that converts heat energy into mechanical work. This definition excludes mobile and spark ignition (SI), engines.

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Applicable CI-ICE dates are:

1. July 11, 2005 is the commenced construction date.
The date of construction is defined as the date the engine is ordered by the owner or operator; and
2. April 1, 2006 is the manufactured date.

The format of the final standard is an output-based emission standard for PM, NO_x, CO, and NMHC (non methane hydro carbons) in units of emissions mass per unit work performed (grams per kW-hr) and smoke standards as a percentage. The emission standards are generally modeled after EPA's standards for nonroad and marine DE. The nonroad DE standards are phased in over several years and have tiers with increasing levels of stringency.

Stationary ICE differs from mobile ICE in that it is not a nonroad as defined at 40 CFR 1068.30, and is not used to propel a motor vehicle.

A SI engine means a gasoline, natural gas, or liquid petroleum gas (LPG) fueled engine, or any type of engine with a spark plug or other sparking device, and with operating characteristics significantly similar to the theoretical Otto combustion cycle. Spark ignition engines usually use a throttle to regulate intake air flow to control power during normal operation.

Dual-fuel engines in which a liquid diesel fuel is used for CI and gaseous fuel, typically natural gas, is used as the primary fuel at an average ratio of less than 2 parts diesel fuel to 100 parts total fuel on an energy equivalent basis are SI engines.

CI-ICE is not applicable because the diesel engine generator was manufactured prior to 2005.

National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines (RICE-NESHAPs)

40 CFR Part 63, Subpart ZZZZ is applicable to stationary RICE located at major and area sources of HAPs emissions. This subpart is not applicable because, since this is an existing source, the engine was built before June 12, 2006. Also per 40 CFR §63.6590(b)(3), an existing compression ignition (CI) stationary RICE does not have to meet the requirements of this subpart or subpart A of this part. So no initial notification is required.

Insignificant Activities/Exemptions

1. 1-fuel tank (300 gal, portable) per HAR§11.60.1-82(f)(1)
2. Water tank (1,200 gallons) for water spray bars per HAR§11.60.1-82(f)(1) refilled by truck; and
3. Loader, Caterpillar model 980C, mobile, on wheels

Alternative Operating Scenarios

The permittee may replace any inoperable diesel engine or the diesel engine generator with a temporary replacement unit of the same or smaller size if any repair reasonably warrants the removal of the diesel engine or the diesel engine generator from its site, that is, equipment failure, engine overhaul, or any major equipment problems requiring maintenance for efficient operation, until the original engine is operable again.

Project Emissions

Pollutants from the stone processing facilities are fugitive dust (PM). Emissions from the diesel fuel fed point source diesel engine generator are various criteria and hazardous air pollutants. Although the applicant may use the two and a half (2½) inch closed stroke setting of the Cedarapids primary crusher at a rating listed at 150 tph, the current procedure based on the Clean Air Act (CAA) is to set the emission calculations on the maximum capacity of the primary crusher which in this case is 750 tph with the twelve (12) inch closed stroke setting. AP-42, 5th edition, Table 11.19.2-2 Emission Factors for Crushed Stone Processing Operations, August 2004, were used to calculate the fugitive dust emissions for the stone processing plant. The tertiary crushing emission factor (EF) was used to predict secondary crushing emissions because there was no secondary crushing EF. The "fines crushing" and "fines screening" are seldom applicable to stone crushing operations but the inclusion in these calculations were made to ensure emission calculations for the newly added screen are conservative.

Table 3.4-1 Gaseous Emission Factors For Large Stationary Diesel and all Stationary Dual-FuelEngines; Table 3.4-3 Speciated Organic Compound Emission Factors For Large Uncontrolled Stationary Diesel Engines; and 3.4-4 PAH Emission Factors For Large Uncontrolled Stationary Diesel Engines, October 1996, were used to estimate the emissions from the diesel engine generator. Emissions were calculated with a maximum fuel consumption rate of 79.69 gal per hour (gph) for the DEG.

PROPOSED

ESTIMATED EMISSIONS OF CRITERIA AND HAZARDOUS AIR POLLUTANTS						
750 tph Stone Processing Plant w/ 1390 hp DEG						
Pollutant	1390 hp Diesel Engine Generator 2080 hr		Fugitive Dust Stone Processing 2080 hr		DEG 8760 hr & Stone PM₁₀ (below)	TSP Stone 8760 hr
	lbs/hr	tons/yr	PM ₁₀ tons/yr	TSP tons/yr	tons/yr	tons/yr
TSP	1.10	1.14			4.80	
CO	9.28	9.65			40.65	
NO _x	34.94	36.34			153.05	
SO _x	5.52	5.74			24.15	
TOC	0.98	1.02			4.31	
Benzene	0.01	0.01			0.04	
Toluene	0.003	0.003			0.01	
Xylenes	0.002	0.002			0.01	
Propylene	0.03	0.032			0.13	
Formaldehyde	0.001	0.001			0.01	
Acetaldehyde	0.001	0.001			0.01	
Acrolein	0.001	0.001			0.001	
Naphthalene	0.002	0.002			0.01	
PAH ¹	0.002	0.002			0.01	
Pri Crusher			0.42	0.94	1.77	3.94
Sec Crusher			0.42	0.94	1.77	3.94
Tert Crusher			0.42	0.94	1.77	3.94
Fines Crushing			.94	2.34	3.94	9.86
Screening			.58	1.72	2.43	7.23
Fines Screen			1.72	2.81	7.23	11.83
Conv Trans Pts			.04	1.42 13 pts	0.15	5.98
Wet Drilling			0.04	0.04	0.04	0.04
Truck Unload			0.02	0.02	0.12	0.12
Truck Load			0.14	0.15	0.14	0.15
Unpaved Road ²			14.35	28.14	60.44	118.51
Storage Piles ²			11.28	22.12	47.51	93.16
Totals		HAPs 0.054	30.37	65.58	HAPs 0.4 127.31	258.7

¹ PAH, polycyclic aromatic hydrocarbons

² Ed DeLuz application.

³ For unpaved roads and storage piles, $PM_{10} = 0.51 PM_{10}$, AP-42, Appendix B.2, Table B.2.2, Category 3.

Air Pollution Controls

The applicant set the efficiency of the wet spray system considered to be 70 - 90% (AP-42, Table 8.19.2-1, b, 9/88). For emission calculations, 70% efficiency was used at nozzle locations and throughout the processing line. The applicant's water supply is transported by a water tank truck.

Based on the application submittal, thirteen (13) water spray locations are set for the nozzles. Water spray nozzle (WSN)1 is located at the grizzly. WSN 2 is located at the end of conveyor 1 and above the beginning of conveyor 2. WSN 3 is at the end of conveyor 2 above the cone crusher screen.

WSN 4 is at the cone crusher. WSN 5 at transfer point conveyor 6 to conveyor 3. WSN 6 conveyor 6 to stock pile. WSN 7 at 3-deck screen to conveyor 7. WSN 8 at conveyor 5 to impact crusher. WSN 9 transfer pt conveyor 7 to conveyor 8. WSN conveyor 8 to stock pile.

The triple deck screen presents 3 different outputs. The finer aggregates fall through the bottom screen. The mid size aggregates falls off the second screen. Stones too large to fall through the first screen are shuffled back to the impact crusher. Water spray nozzle 7 is located above conveyor 3 which collects the output of the impact crusher and transfers the crushed stones to conveyor 2. Recall that conveyor 2 carries the stones to the triple deck screen.

A water tank truck will be used as necessary to minimize fugitive dust on stockpiles, roads and wherever necessary. The 1390 hp (1040 kW) diesel engine generator (DEG) will be fired exclusively on fuel oil no. 2 with less than or equal to 0.5% sulfur content by weight to minimize sulfur dioxide emissions.

Air Quality Assessment

Ambient air means the general outdoor atmosphere to which the public has access. The numerical ambient air standards limit the time-average concentration of specified pollutants dispersed or suspended in the ambient air of the State, but these standards do not in any manner authorize the significant deterioration of existing air quality in any portion of the State. An ambient air quality impact analysis is performed for new or modified sources. The ambient air quality standards seek to protect public health and welfare and to prevent the significant deterioration of air quality. The Department of Health air modeling guidance generally exempts an applicant from performing an ambient air quality impact analysis for (1) existing sources with no proposed modifications, (2) insignificant activities, (3) fugitive emission sources, storage tanks, storage piles, pipe leaks, etc., and (4) intermittent operating noncombustion sources.

This plant shall be limited to 2,080 hours per rolling twelve (12) month period. The previous air quality assessment demonstrated compliance with National Air Ambient Quality Standards as shown below.

PROPOSED

DEG STACK DATA					
Stack Ht [ft] (m)	Stack Dir	stack id [ft] (m)	Exit Vel [ft/s] (m/s)	q Flow Rrate [ft ³ /min] (m ³ /s)	Stack Gas Exit Tmp [°F] (°K)
[25] (7.62)	up	[1] (0.305)	[155.5] (47.41)	[7329] (3.459)	[831] (717)

COMPLIANCE WITH AMBIENT AIR QUALITY STANDARDS (AAQS)							
Ed DeLuz Trucking & Gravel, 750 TPH Portable Stone Quarrying/Processing Plant and 1390 hp diesel engine generator							
AIR POLLUTANT	AVG'G TIME	PREDICTED AIR QUALITY IMPACTS (µg/m ³)				AIR STANDARD HAWAII/NAT'L (µg/m ³)	PERCENT OF STD (%)
		DEG		BCKGRD*	TOTAL		
Carbon Monoxide CO	1-hour	63.45		741	804	10,000/40,000	8
	8-hour	44.4		381	425	5,000/10,000	9
Nitrogen Dioxide NO ₂	1-hour	-		--	--	--	--
	Annual	38.5		2	40.5	70/100	58
Particulate Matter PM ₁₀	1-hour	--	--	--	--	--	--
	24-hour	3.0		32	35	150/150	23
	Annual	0.36		14	14.36	50/50	29
Ozone O ₃	1-hour	4.5		91	96	100/235	96
	8-hour	3.15		64	67	157/157	43
Sulfur Dioxide SO ₂	1-hour	--		--	--	--	--
	3-hour	33.92		588	622	1,300/--	48
	24-hour	15.08		119	134	365/365	37
	Annual	1.8		6	7.8	80/80	10

* Background from Puna-errata, \HAWA_101.AQ\95.237\1993
NO₂ maximum value by OLM

Other Issues

None.

Significant Permit Conditions

1. Subject to Title 40 Code of Federal Regulations (CFR) Part 60-Standards of Performance for New Stationary Sources, Subpart OOO.

PROPOSED

2. A non-resetting hour meter shall be installed on the 1,390 hp diesel engine generator for the recording of the total hours of operation of the Portable Stone Quarrying and Processing Plant.
3. The operating hours of the Portable Stone Quarrying and Processing Plant shall not exceed 2,080 hours in any rolling twelve (12) month period.
4. The plant shall be equipped with a wet spray system to reduce emissions of fugitive dust. This water spray system shall be utilized as necessary while the plant is in operation.

Conclusion And Recommendation

Based on the information submitted by Edwin Deluz Trucking and Gravel, LLC, it is the determination of the Hawaii Department of Health that the modified project will be in compliance with 40 CFR Part 60, Subpart A, Subpart OOO, and the Hawaii Administrative Rules (HAR), Chapter 11-60.1, and will not cause or contribute to a violation of any State or National ambient air quality standards. Conservatism was applied to the estimated emissions from this facility. The actual crushing throughput will be much lower, basalt at about 750 tph, than the assumed maximum design capacity used in the emission calculations, limestone at 750 tph. Also, at this time the facility's typical annual hours of operation for stone crushing is less than the annual hourly limitation of 2,080 hours. At no time will emissions be greater than the described equipment layout. Therefore, the Hawaii DOH intends to issue a Covered Source Permit to Edwin DeLuz Trucking and Gravel, LLC, subject to permit conditions, public comments, and EPA review.

Glenn Nagamine
October 22, 2008