

**COVERED SOURCE RENEWAL APPLICATION REVIEW
APPLICATION NO. 0507-05**

APPLICANT: Pineridge Farms, Inc.

LOCATION: Various Sites, State of Hawaii
Baseyard: West Oahu Aggregate Baseyard,
87-1650 Paakea Road, Nanakuli, Oahu

RESPONSIBLE OFFICIAL: Ms. Georgette M. Silva
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SIC CODE: 1411 (Dimension Stone)

BACKGROUND:

The permit renewal application and filing fee of \$500.00 was submitted April 24, 2006, complying with Attachment I, Special Condition No 26. The permit expired April 24, 2007. No modifications to the facility were proposed.

Pineridge Farms sold the following equipment:

1. One (1) 275 TPH BL-Pegson Impact Crusher, Model 428 Tractor, Serial No. QM014776 with One (1) Caterpillar 300 hp diesel engine, Model 3306, Serial No. 64Z33001

Equipment sold to Henry's Equipment (see file 0576); addressed in Department's 10/19/04 permit cover letter

2. One (1) 500 TPH Powerscreen, Turbo Chieftain 1400, Serial No. 6608038

Equipment sold to West Oahu Aggregate (see file 0041), Department's 1/14/05 letter acknowledging request to remove from permit

3. One (1) 600 TPH Powergrid Powerscreen, Model Mk III, Serial No. 7212816

Equipment sold to Koga Engineering (see file 0601), Department's 3/17/06 letter acknowledging request to remove from permit

The aforementioned equipment will be removed from the permit and applicable conditions revised upon renewal.

Re-cap of the permitting history are as follows:

1. Initial permit 4/25/02 (MR)
2. Minor modification 8/25/03 (MR) to add a Turbo Chieftain 1400 Powerscreen
3. Minor Modification 2/2/04 (MR) to add Tracked Impactor and remove Turbo Chieftain 1400 Powerscreen
4. Minor Modification 10/19/04 (WK) to add Turbo Chieftain 1400 Powerscreen

EQUIPMENT:

One (1) 195 TPH BL-Pegson Jaw Crusher, Model Metro Trak, Serial No. QM10381
with One (1) Caterpillar 160 hp diesel engine, Model 3116TA, Serial No. 2MR01700
One (1) 400 TPH BL-Pegson Tracked Impactor (42" x 42") with Product Sizing Screen
(11' x 5', 2-deck), Model 4242 SR, Serial No. QM017963 with
One (1) Caterpillar 300 hp diesel engine, Model C-9 DITA, Serial No. CLJ03612
One (1) 200 TPH Powerscreen, Model Mk II, Serial No. 2813808
One (1) 500 TPH Powerscreen, Turbo Chieftain 1400, Serial No. 66112673
Various Conveyors

AIR POLLUTION CONTROL EQUIPMENT:

Waterspray System

APPLICABLE REQUIREMENTS:

Hawaii Administrative Rules (HAR)

Chapter 11-59, Ambient Air Quality Standards

Chapter 11-60.1, Air Pollution Control

Subchapter 1, General Requirements

Subchapter 2, General Prohibitions

11-60.1-31 Applicability

11-60.1-32 Visible Emissions

11-60.1-33 Fugitive Dust

11-60.1-38 Sulfur Oxides from Fuel Combustion

Subchapter 5, Covered Sources

Subchapter 6, Fees for Covered Sources, Noncovered Sources, &
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(25) Standards of Performance for Non-Metallic
Mineral Processing Plants

Subchapter 10, Field Citations

PREVENTION OF SIGNFICANT DETERIORATION (PSD):

PSD review is not applicable since the facility is not a major stationary source.

NATIONAL EMISSION STANDARDS FOR HAZARDOUS AIR POLLUTANTS (NESHAPS), 40 CFR Part 61:

No hazardous air pollutants are emitted at significant levels (≥ 10 TPY single HAP or ≥ 25 TPY for total HAPs) and this source is not a listed source under 40 CFR 61. Therefore, NESHAPS does not apply.

NEW SOURCE PERFORMANCE STANDARDS (NSPS), 40 CFR Part 60:

Subpart A - General Provisions

Subpart OOO - Standards of Performance for Non-Metallic Mineral Processing Plants

Note that stand-alone screens are exempt from Subpart OOO, but if operated with a crusher subject to the subpart, the screens and its conveyors become subject to the subpart as well.

CONSOLIDATED EMISSIONS REPORTING REQUIREMENTS (CERR), 40 CFR Part 51, Subpart A:

40 CFR Part 51, Subpart A - Emissions Inventory Reporting Requirements, determines CERR based on facility-wide emissions of each air pollutant at the CERR triggering level(s). The emissions do not exceed the respective CERR threshold level. As such, emissions data will not be required to be inputted into the National Emissions Inventory (NEI) database.

The Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions exceeding the DOH reporting levels. TSP emissions exceed the respective DOH reporting level. As such, annual emissions reporting still will be required.

Table 1 - CERR/DOH Reporting Levels

Pollutant	Facility Emissions (TPY)	Annual Cycle, Type A Sources (TPY)	3-yr. Cycle, Type B Sources (TPY)	DOH Reporting Level
SO ₂	1.69	2,500	100	25
VOC	1.17	250	100	25
NO _x	14.40	2,500	100	25
CO	3.11	2,500	1,000	250
Pb	--	n/a	5	5
TSP	30.37	n/a	n/a	25
PM ₁₀	11.42	250	100	25
PM _{2.5}	2.56	250	100	n/a
Ammonia	--	250	100	n/a

MAJOR SOURCE/SYNTHETIC MINOR SOURCE APPLICABILITY:

A synthetic minor is a facility that is potentially major as defined in HAR 11-60.1-1 (e.g., ≥ 100 TPY), but is made non-major through operational restrictions by enforceable permit conditions. A re-evaluation of emissions from equipment currently in operation (excluding sold equipment) and using most recent emission factors, potential TSP emissions (e.g., 8,760 hr/yr operation with any air pollution control equipment) is greater than 100 TPY (see Table 6). Current limits reduce TSP emissions below this threshold. Thus, the facility is a synthetic minor and classified as a non-major source.

COMPLIANCE ASSURANCE MONITORING (40 CFR Part 64):

Applicability of the Compliance Assurance Monitoring (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 source per Title V of the Clean Air Act Amendments of 1990;
2. Be subject to federally enforceable applicable requirements;
3. Have pre-control device potential emissions that exceed applicable major source thresholds;
4. Be fitted with an “active” air pollution control device; and
5. Not be subject to certain regulations that specifically exempt it from CAM.

Compliance Assurance Monitoring (CAM) does not apply to this facility since it is not a major source.

BEST AVAILABLE CONTROL TECHNOLOGY (BACT) REQUIREMENTS:

BACT analysis is required for new covered sources and significant modifications to covered sources that have the potential to emit or increase emissions above significant levels, as defined in 11-60.1-1, considering any limitations, enforceable by the Director, on the covered source to emit a pollutant. No modifications were proposed that increase emissions greater than the significant level(s). As such, BACT analysis for this renewal is not required for the facility. Use of watersprays is already employed and considered BACT.

INSIGNIFICANT ACTIVITIES/EXEMPTIONS:

No insignificant activities are proposed for this renewal. Current insignificant activities (see details in previous review) are listed as follows:

1. Deutz diesel engine powering the Turbo Chieftain 1400 Powerscreen
2. Lister-Peter diesel engine powering the Mark II Powerscreen
3. Lister Peter diesel engine powering an auxiliary conveyor
4. 300 gallon tank storing diesel no. 2

ALTERNATE OPERATING SCENARIOS:

No alternate operating scenarios are proposed for this renewal.

PROJECT EMISSIONS:

For crushing, screening and conveyor transfers, AP-42 controlled emission factors (EFs) are used wherever available instead of uncontrolled EFs with 70% controlled efficiency for watersprays as applied in the previous review. A 70% control efficiency is applied to truck loading and aggregate storage piles. Emission factors for the diesel engines remain unchanged from the initial review.

In the case of fines screening, there is a relatively big difference in the estimated emissions depending upon the method of calculation. For example, a 500 TPH screener @ 1,560 hr/yr generates TSP emissions of 35.10 TPY using AP-42 uncontrolled EF with 70% efficiency applied to waterspray versus 1.40 TPY for AP-42 controlled EF. The disparity in emissions increases as the size of the screener and/or hours of operation increases. In this case, the disparity in TSP emissions is a factor of 25

(e.g., 0.30[1-70%]/0.0036). For this review, Fines screening was used for worst case scenario using the AP-42 controlled EF.

The amount of material in stockpiles is assumed to be generated from crushing operations only; screeners only process the material so essentially the volume of material onsite is still the same. Wind erosion emissions from stockpiles are calculated from the dimension of 2 stockpiles, representing the output production of the 2 crushers. Unpaved road fugitives from trucks hauling aggregate offsite are assumed to be based on the amount of material from crushers and not inclusive of processed material from screener activities. Stockpile wind erosion and unpaved road fugitive emissions were re-evaluated with the most recent EFs.

Emissions are based on current limits. Emissions calculated at 8,760 hr/yr are shown in parenthesis. PM_{2.5} was evaluated also for this renewal.

Table 2 - Crushers/Screeners

Activity	^a Emission Factor, lb/ton			Annual Emissions, TPY		
	PM _{2.5}	PM ₁₀	TSP	PM _{2.5}	PM ₁₀	TSP
195 TPH Metro Trak Crusher (2,080 hr/yr)						
Tertiary Crushing	0.0001	0.00054	0.0012	^d 2.03 E-02 (8.54 E-02)	0.11 (0.46)	0.24 (1.02)
Conveyor (4)	1.3 E-05 x 4 = 5.2 E-05	4.6 E-05 x 4 = 1.84 E-04	0.00014 x 4 = 5.6 E-04	1.05 E-02 (4.44 E-02)	3.73 E-02 (0.16)	0.11 (0.48)
Truck Unloading	^b 4.71 E-06	1.6 E-05	^c 3.14 E-05	2.87 E-04 (1.21 E-03)	9.73 E-04 (4.10 E-03)	1.91 E-03 (8.05 E-03)
400 TPH Impactor Crusher (2,080 hr/yr)						
Tertiary Crushing	0.0001	0.00054	0.0012	4.16 E-02 (0.18)	0.22 (0.95)	0.50 (2.10)
Screening (Fines)	0.00054	0.0022	0.0036	0.22 (0.95)	0.92 (3.85)	1.50 (6.31)
Conveyor (7)	1.3 E-05 x 7 = 9.10 E-05	4.6 E-05 x 7 = 3.22 E-04	0.00014 x 7 = 9.80 E-04	3.79 E-02 (0.16)	0.13 (0.56)	0.41 (1.72)
Truck Unloading	4.71 E-06	1.6 E-05	3.14 E-05	5.88 E-04 (2.48 E-03)	2.00 E-03 (8.41 E-03)	3.92 E-03 (1.65 E-02)
200 TPH Mk II Powerscreen (2,080 hr/yr)						
Screening (Fines)	0.00054	0.0022	0.0036	0.11 (0.47)	0.46 (1.93)	0.75 (3.15)
Conveyor (4)	5.2 E-05	1.84 E-04	5.6 E-04	1.08 E-02 (4.56 E-02)	3.83 E-02 (0.16)	0.12 (0.49)
Truck Unloading	4.71 E-06	1.6 E-05	3.14 E-05	2.94 E-04 (1.24 E-03)	9.98 E-04 (4.20 E-03)	1.96 E-03 (8.25 E-03)
500 TPH Turbo Chieftain 1400 Screener (1,560 hr/yr)						
Screening (Fines)	0.00054	0.0022	0.0036	0.21 (0.89)	0.86 (3.61)	1.40 (5.91)
Conveyor (4)	5.2 E-05	1.84 E-04	5.6 E-04	2.03 E-02 (8.54 E-02)	7.18 E-02 (0.30)	0.22 (0.92)
Truck Unloading	4.71 E-06	1.6 E-05	3.14 E-05	5.51 E-04 (2.32 E-03)	1.87 E-03 (7.88 E-03)	3.67 E-03 (1.55 E-02)

	Total	0.68 (2.92)	2.85 (12.00)	5.26 (22.15)
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^a AP-42, Table 11.19.2-2 (8/04)

^b AP-42, Appendix B.2, Table B.2.2, Category 3, PM_{2.5} = 0.15TSP

^c AP-42, Appendix B.2, Table B.2.2, Category 3, TSP = PM₁₀ / 0.51

^d (195 ton/hr)(0.0001 lb/ton)(2,080 hr/yr)(ton/2,000 lb) = 2.03 E-02 TPY

Stockpiles

AP-42, Section 13.2.4.3 (11/06), Equation 1

E, lb/ton = k (0.0032) x [(U/5)^{1.3} / (M/2)^{1.4}] emission factor

U = 11.4 mph wind speed, Honolulu (AP-42, Table 7.1-9, version 11/06)

M = 1.77% (AP-42, Table 11.12-2, footnote b)

Aggregate Storage Piles: 195 TPH x 2,080 hr/yr = 4.06 E+05 TPY

PM₁₀ : E = (0.35) (0.0032) x [(11.4/5)^{1.3} / (1.77/2)^{1.4}] = 3.88 E-03 lb/ton

(4.06 E+05 ton/yr) x (3.88 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 0.24 TPY (1.00)

PM_{2.5} : k = 0.11, E = 1.22 E-03 lb/ton

(4.06 E+05 ton/yr) x (1.22 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 0.07 TPY (0.31)

TSP : k = 0.74, E = 8.20 E-03 lb/ton

(4.06 E+05 ton/yr) x (8.20 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 0.50 TPY (2.10)

Aggregate Storage Piles: 400 TPH x 2,080 hr/yr = 8.32 E+05 TPY

PM₁₀ : E = (0.35) (0.0032) x [(11.4/5)^{1.3} / (1.77/2)^{1.4}] = 3.88 E-03 lb/ton

(8.32 E+05 ton/yr) x (3.88 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 0.48 TPY (2.04)

PM_{2.5} : k = 0.11, E = 1.22 E-03 lb/ton

(8.32 E+05 ton/yr) x (1.22 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 0.15 TPY (0.64)

TSP : k = 0.74, E = 8.20 E-03 lb/ton

(8.32 E+05 ton/yr) x (8.20 E-03 lb/ton) x (ton/2000 lb) x (1-70%) = 1.02 TPY (4.31)

Stockpile Wind Erosion

1. Wind Erosion Emission Factor, AP-42 Section 13.2.5 (revision 11/06)

$$\text{emission factor: } E, \text{ g/m}^2 = k \sum_{i=1}^N P_i \quad (\text{Equation 2})$$

$$= kNP, P = P_1 = P_2 = \dots = P_N$$

where N = number of disturbances per year

$$= (1 \text{ loading activity per day})(5 \text{ day/wk})(52 \text{ wk/yr}) = 260$$

k = particle size multiplier

note: assume each stockpile is disturbed with the same frequency and each pile area's exposure to wind is the same throughout

Parameter	PM _{2.5}	PM ₁₀	TSP
k	0.075	0.5	1.0
E, g/m ²	^a 226.40	1,509.30	3,018.60

$$^a(0.075)(260)(11.61) = 226.40$$

$$\text{erosion potential: } P, \text{ g/m}^2 = 58 (u^* - u_t^*)^2 + 25 (u^* - u_t^*) \quad (\text{Equation 3})$$

where P = 0 for u* <= u_t*

$$P = 58 (0.711 - 0.43)^2 + 25 (0.711 - 0.43) = 11.61 \text{ g/m}^2$$

$$\text{friction velocity: } u^*, \text{ m/s} = 0.053 u_{10}^+ \quad (\text{Equation 4})$$

$$u^* = (0.053)(13.41) = 0.711 \text{ m/s}$$

threshold friction velocity: u_t^* , m/s (Table 13.2.5-1)
 for smallest particle size on aggregate rock, use $u_t^* = 0.43$ m/s

fastest mile value converted to a referenced height of 10 meters:
 u_{10}^+ , m/s = $u^+ \{ [\ln (10/0.005)] / [\ln (z/0.005)] \}$ (Equation 5)
 note: "fastest mile" is wind speed corresponding to the whole mile of wind movement
 that has passed by the 1 mile contact anemometer in the least amount of time

$u_{10}^+ = 30$ mph = 13.41 m/s with anemometer height at 10 meters

fastest mile at an anemometer height of z meters: u^+ , m/s
 $u^+ = 30$ mph per Section 13.2.5.2

2. Stockpile Geometry

stockpile is cone-shaped, assume 45° sloping sides
 volume of cone = $(1/3) \pi r^2 h$
 $\tan \theta = \text{opposite/adjacent} = h/r$, $\tan 45^\circ = 1$, $h = r$
 therefore, $r = (3V / \pi)^{1/3}$ radius of base

$$\begin{aligned} \text{cone surface area} &= \pi r (r^2 + h^2)^{1/2} \\ &= 2^{1/2} \pi r^2 \end{aligned}$$

Table 3 - Wind Erosion Emissions From Aggregate Stockpiles

Crusher	Thru-put, TPH	Radius, m	Surface Area, m ²	Emissions, TPY		
				PM _{2.5}	PM ₁₀	TSP
Metro Trak	195	8.77	341.64	0.03	0.17	^a 0.34
Impactor	400	11.14	551.56	0.04	0.28	0.55
Total				0.07	0.45	0.89

^a $(2,080 \text{ hr/yr})(\text{yr}/52 \text{ wk})(\text{wk}/5 \text{ days}) = 8 \text{ hr/day}$
 stockpile = $(195 \text{ ton/hr})(8 \text{ hr/day})(2,000 \text{ lb/ton})(\text{ft}^3 / 124.98 \text{ lb})(1 \text{ yd}/3 \text{ ft})^3 = 924.56 \text{ cy/day}$
 typical densities: gravel – loose, dry = 1,522 kg/m³
 gravel – with sand, natural = 1,922 kg/m³
 gravel – dry ¼ to 2 in. = 1,682 kg/m³
 gravel – wet ¼ to 2 in. = 2,002 kg/m³ = 124.98 lb/ft³

$$\begin{aligned} r &= [(3)(924.56) / \pi]^{1/3} = 9.59 \text{ yd} \\ \text{cone surface area} &= 2^{1/2} \pi (9.59)^2 = 408.89 \text{ yd}^2 \\ 408.89 \text{ yd}^2 (1 \text{ m} / 1.094 \text{ yd})^2 &= 341.64 \text{ m}^2 \end{aligned}$$

$$\text{TSP: } (3,018.60 \text{ g/m}^2)(341.64 \text{ m}^2)(2.205 \text{ E-03 lb/g})(\text{ton}/2,000 \text{ lb})(1-70\%) = 0.34 \text{ TPY}$$

Vehicle Emissions (Unpaved Roads)

AP-42, Section 13.2.2-1, Equation 1a and 2, Table 13.2.2-2 (revision 11/06)
 $E, \text{ lb/VMT} = k (s/12)^a (W/3)^b [(365 - P) / P]$

Constant	PM _{2.5}	PM ₁₀	TSP
k (lb/VMT)	0.15	1.5	4.9
a	0.9	0.9	0.7
b	0.45	0.45	0.45

s = 10% silt content (Table 13.2.2-1)
 W = 26.5 tons mean vehicle weight
 P = no. of "wet" days with at least 0.01 inches of precipitation for a year = 54

Trucks VMT/yr: 0.25 round trip
 amount of crushed rock = 1.24 E+06 ton/yr
 truck load capacity = 21 tons
 no. of truck loads = no. of trips on road = 1.238 E+06 / 21 = 58,953
 trucks VMT/yr = 0.25 x 58,953 = 14,738 mi/yr

$$PM_{2.5}: E = 0.15 (10/12)^{0.9}(26.5/3)^{0.45}[(365 - 54) / 365] = 0.29 \text{ lb/VMT}$$

$$(0.29 \text{ lb/VMT}) \times (14,738 \text{ mi/yr}) \times (1 - 70\%) \times (\text{ton}/2,000 \text{ lb}) = 0.64 \text{ TPY} \quad (2.70)$$

$$PM_{10}: E = 1.5 (10/12)^{0.9}(26.5/3)^{0.45}[(365 - 54) / 365] = 2.89 \text{ lb/VMT}$$

$$(2.89 \text{ lb/VMT}) \times (14,738 \text{ mi/yr}) \times (1 - 70\%) \times (\text{ton}/2,000 \text{ lb}) = 6.39 \text{ TPY} \quad (26.91)$$

$$TSP: E = 4.9 (10/12)^{0.7}(26.5/3)^{0.45}[(365 - 54) / 365] = 9.79 \text{ lb/VMT}$$

$$(9.79 \text{ lb/VMT}) \times (14,738 \text{ mi/yr}) \times (1 - 70\%) \times (\text{ton}/2,000 \text{ lb}) = 21.65 \text{ TPY} \quad (91.15)$$

Table 4 - Diesel Engine

Pollutant	^a EF, lb/MMBtu	Annual Emission, TPY		
		Caterpillar 160 hp Model 3116TA	Caterpillar 300 hp Model C-9 DITA	Total
NO _x	4.41	4.95 (20.91)	9.45 (39.70)	14.40 (60.61)
CO	0.95	1.07 (4.50)	2.04 (8.55)	3.11 (13.05)
SO ₂	mass balance	^b 0.58 (2.45)	1.11 (4.66)	1.69 (7.11)
TSP	0.32	0.36 (1.52)	0.69 (2.88)	1.05 (4.40)
PM ₁₀ = 96% TSP	0.31	0.35 (1.47)	0.66 (2.79)	1.01 (4.26)
PM _{2.5} = 90% TSP	0.29	0.33 (1.38)	0.62 (2.61)	0.95 (3.99)
VOC	0.36	0.40 (1.71)	0.77 (3.24)	1.17 (4.95)

Cat 160 hp: (7.9 gal/hr)(7.1 lb/gal)(19,300 Btu/lb) = 1.08 MMBtu/hr

Cat 300 hp: 15.0 gal/hr = 2.06 MMBtu/hr

^a AP-42, Table 3.3-1 (10/96); Appendix B.2, Table B.2-2 for PM₁₀ and PM_{2.5}

^b (7.9 gal/hr)(7.1 lb/gal)(0.5%) = 0.28 lb S/hr

MW SO₂ / MW S = 64.06 / 32.06 implies (64.06 / 32.06) (0.28) = 0.56 lb SO₂ /hr

(0.56 lb SO₂ /hr) (2,080 hr/yr) (ton/2,000 lb) = 0.58 TPY

Table 5 - HAPs and PAH

Pollutant	^a Emission Factor (lb/MMBtu)	Emissions, TPY	
		Caterpillar 160 hp Model 3116TA	Caterpillar 300 hp Model C-9 DITA
Benzene	9.33 E-04	1.05 E-03	2.00 E-03
Toluene	4.09 E-04	4.59 E-04	8.76 E-04
Xylene	2.85 E-04	3.20 E-04	6.11 E-04
Propylene	2.58 E-03	2.90 E-03	5.53 E-03
1,3-Butadiene	< 3.91 E-05	< 4.39 E-05	< 8.38 E-05
Formaldehyde	1.18 E-03	1.33 E-03	2.53 E-03
Acetaldehyde	7.67 E-04	8.61 E-04	1.64 E-03
Acrolein	< 9.25 E-05	< 1.04 E-04	< 1.98 E-04
Naphthalene	8.48 E-05	9.52 E-05	1.82 E-04
Total HAPs		7.16 E-03	1.37 E-02
Total PAH	< 1.68 E-04	< 1.89 E-04	< 3.60 E-04

^a AP-42, Table 3.3-2 (10/96)

Table 6 - Facility-Wide Emissions Summary

Pollutant	Crushers/Screeners	Storage Piles		Unpaved Roads	Diesel Engines	Total Emissions, TPY	
		Continuous Drop	Wind Erosion			^a allowable	8760 hr/yr
NO _x	--	--	--	--	14.40	14.40	60.61
CO	--	--	--	--	3.11	3.11	13.05
SO ₂	--	--	--	--	1.69	1.69	7.11
TSP	5.26	1.52	0.89	21.65	1.05	30.37	127.86
PM ₁₀	2.85	0.72	0.45	6.39	1.01	11.42	48.11
PM _{2.5}	0.68	0.22	0.07	0.64	0.95	2.56	10.85
VOC	--	--	--	--	1.17	1.17	4.95
HAPs	--	--	--	--	2.09 E-02	2.09 E-02	8.80 E-02

^a Based on current permit limits specified in Special Condition No. C.2.: 2,080 hr/yr for Metro Trak and Impactor Crushers, and Mk II Powerscreen; 1,560 hr/yr for Chieftain Screener

Re-evaluating Current Limiting Configurations

To operate as a temporary source, the facility must be a non-major source. For a major source, the threshold is 100 TPY. Previously, to keep TSP emissions below this threshold, the facility was limited to specific configurations (i.e., combinations of equipment operating together) and operating hour restrictions under Special Condition C.2. issued with amended permit dated 10/19/04. The Mark III Powerscreen was sold to another company and operating under another permit. As such, configurations a and b are no longer applicable. With just the operating hour restrictions, re-evaluation of the emissions for the facility indicates configuration c (note: Trakpactor removed since already sold and operating under another permit) and d is also no longer applicable since TSP emissions are below 100 TPY (see Table 6) for all existing equipment operating together. Special Condition C.2. is revised accordingly.

AIR QUALITY ASSESSMENT:

The Department of Health generally exempts an applicant from performing an ambient air quality impact analysis for (1) existing sources with no proposed modifications, (2) exempt activities, (3) fugitive emission sources (e.g., storage tanks, storage piles, pipe leaks, etc.), and (4) intermittent operating non-combustion sources. The facility is not proposing any modifications to the currently permitted equipment. Therefore, an air quality analysis was not performed for this renewal.

Air quality modeling already was performed for the Caterpillar 300 hp diesel engine (Model C-9 DITA) powering the Tracked Impactor and the results are shown in Table 7 (see 2/2/04 review for details). The Caterpillar 160 hp diesel engine (Model 3116TA) powering the Metro Trak was modeled separately at the Kapaa Quarry site (see 4/25/02 review for details) and the results are shown in Table 8. The modeling was done for the Kapaa Quarry site since the applicant was not certain of an initial location for both crushing plants, and the Kapaa Quarry represented typical future projects.

Table 7 - Modeling Results For Caterpillar 300 hp C-9 DITA Diesel Engine

Pollutant	Averaging Period	Conc. (ug/m ³)	^a Background (ug/m ³)	Total (ug/m ³)	SAAQS (ug/m ³)	Percent of SAAQS, (%)
SO ₂	3-hr	398.90	50	448.9	1,300	34.53
	24-hr	177.29	13	190.29	365	52.13
	Annual	21.05	3	24.05	80	30.06
NO _x	Annual	54.47	9	63.47	70	90.67
PM ₁₀	24-hr	106.96	39	145.96	150	97.31
	Annual	12.70	16	28.7	50	57.40
CO	1-hr	819.18	3,990	4,809.18	10,000	48.09
	8-hr	573.43	1,810	2,383.43	5,000	47.67

^a Oahu SLAM/NAMS, 2002

Table 8 - Modeling Results For Caterpillar 160 hp 3116TA Diesel Engine

Pollutant	Averaging Period	Conc. (ug/m ³)	^a Background (ug/m ³)	Total (ug/m ³)	SAAQS (ug/m ³)	Percent of SAAQS, (%)
SO ₂	3-hr	326.74	99	425.74	1,300	32.75
	24-hr	145.22	24	169.22	365	46.36
	Annual	17.24	4	21.24	80	26.55
NO _x	Annual	56.96	9	65.96	70	94.23
PM ₁₀	24-hr	87.63	56	143.63	150	95.75
	Annual	10.40	20	30.40	50	60.80
CO	1-hr	670.68	6,726	7,396.68	10,000	73.97
	8-hr	469.48	2,537	3,006.48	5,000	60.13

^a Oahu SLAM/NAMS, 1998-2000 (highest of three years)

OTHER ISSUES:

1. Per Des Zamora: The Metro Trak crusher was already sold to Tom's Backhoe and Excavation. The equipment is still in operation under the Pineridge Farm's permit pending issuance of a permit for the new owner. As such, the emissions for this equipment were included in the facility wide emissions.
2. Notification letter for stack height extension (Special Condition No. E.7.) was submitted November 29, 2007. Per Georgette 11/23/07, the stack heights were raised. Enforcement Section was notified of the late notification submittal.

SIGNIFICANT PERMIT CONDITIONS:

The listed conditions below are references to the amended permit issued 10/19/04. For a full listing of revisions to Attachment II, Special Conditions, see attached "Revisions in Ramseyer Format."

1. Special Condition C.1. (deleted in renewal permit) - Per 4/25/02 project review, the applicant proposed not to assemble or operate the Metro Trak crusher at the 611 Middle Street site, but only for storage purposes. In case the applicant decided to operate at the Middle Street site, the Department included language to allow the applicant to operate under the provision that an air quality modeling analysis be performed on the 160 hp diesel engine at that site. For modeling purposes, an ambient air quality analysis was done for the Kapaa Quarry site since this location represented typical future sites of operation for the Metro Trak. Per the engineer who initially reviewed the air permit application, due to many surrounding buildings, this condition was intended to ensure SAAQS compliance at the Middle Street site. Pineridge Farms "main" baseyard has been relocated to 87-1650 Paakea Road site. As such, the condition will be deleted. Special Conditions D.5.d. and E.4.c. of the amended permit issued 10/19/04 was deleted as well.
2. Special Condition C.2. (re-numbered as C.1. in renewal permit) - The existing limiting configurations in the permit issued 10/19/04 was deleted and replaced with the operating hour limits. The limits are retained to maintain non-major status as well as meeting state ambient air quality standards (see 4/25/02 review). Since the limiting configurations no longer apply, Special Conditions D.5.e. and E.4.d. of the amended permit issued 10/19/04 was deleted.
3. Special Condition C.3.b. (deleted in renewal permit): "Neither the Turbo Chieftain 1400 Powerscreen nor the 4242 SR Tracked Impactor with Sizing Screen shall be used for the screening of fines. For the purposes of this permit, fines shall be defined as the screen output product having a maximum size of 0.50 centimeters (3/16th inch) (e.g., sand or soil)."

This condition was deleted because re-evaluation of emissions even with fines screening indicates the facility would still be a non-major source (see Table 6). Note that the condition, as proposed by the applicant, was incorporated in the emission calculations for the initial review (see 4/25/02 review).

Previous reviews used AP-42 Uncontrolled emission factors with 70% control for wet suppression. For this renewal review, the AP-42 Controlled EFs were used instead. For a comparison of estimated emissions from fines screening using different calculation methods, see the following result:

Calculation Method	Fines Screening EF	TSP Annual Emissions, TPY		
		500 TPH Powerscreen, 1,560 hr/yr	400 TPH Impactor, 2,080 hry/r	Total
AP-42 Controlled	0.0036	1.40	1.50	2.90
AP-42 Uncontrolled	0.30 (1-70%)	35.10	37.44	72.54

Note: AP-42 Uncontrolled calculated with 70% efficiency for watersprays

Since Special Condition C.3.b. was deleted, Special Conditions D.5.f. and E.4.e. of the amended permit issued 10/19/04 was also deleted.

- Special Condition C.4.d. (re-numbered as C.3.d. in renewal permit) - The *Trackpactor* was deleted and replaced with the *Tracked Impactor*. An ambient air quality analysis is required if the Metro trak operated with the Tracked Impactor for the combined operation of the two diesel engines at the same location. There is no longer limiting configurations so the option is there for combined operation.

CONCLUSION AND RECOMMENDATION:

The applicant proposed no modifications to the facility for the renewal permit. Several pieces of equipment were sold and thereby reduced emissions from the facility. Renewal of the permit is recommended pending 30-day public and 45-day EPA review periods.

Carl Ibaan
November 28, 2007