PROPOSED

COVERED SOURCE PERMIT REVIEW
COVERED SOURCE PERMIT No. 0244-01-C
MODIFICATION APPLICATIONS No. 0244-04, 0244-05

Applicant::	Tileco, Inc.
Responsible Official:	Dennis I. Sakamoto President 808-682-5737
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Location/Mailing Address:	91-209 Hanua St Campbell Industrial Park Kapolei, Oahu 96707
UTM Coordinates (NAD 83)	2,356,458 meters North 593,247 meters East Zone 4

Existing Equipment:
Tileco currently operates the following equipment pursuant to covered source permit 0244-01-C, issued on March 18, 2005.

1. Stone Processing Plant

    a. One (1) 384 TPH, 24" x 36" Lippman primary jaw crusher, Grizzly King Extra Heavy Duty;
    b. One (1) 200 TPH Northwest Crusher Technologies secondary impact crusher, model 6;
    c. One (1) 50 TPH Canica tertiary crusher, model 45VSI;
    d. One (1) 443 TPH, 5' x 16' 3-deck Thunderbird vibrating screen, model 5163.3;
    e. One (1) Dustvent cyclone with after filter baghouse, model 35D-20 servicing stone processing equipment;
    f. Various conveyors; and
    g. Water spray system.

2. Sand Plants (subcategory of Stone Processing Plant)

    a. One (1) 99 TPH, 3' x 10' 2-deck Thunderbird wet screen, model 3102.25-08;
    b. One (1) 159 TPH, 4' x 12' 2-deck Thunderbird wet screen, model 4122.4-12-D0072;
    c. One (1) 94 TPH Pioneer twin roll crusher, model 2416;
    d. One (1) 18 x 25 Eagle washer;
    e. One (1) 125 TPH Ortner sandwasher, model 3000;
    f. Various conveyors; and
    g. Water spray system.

3. Concrete Block Plant I

a. Two (2) Columbia concrete mixers, model 81, 30 yd^3/hr each;
b. One (1) Columbia block machine, model 16HF,
c. One (1) Columbia block machine, model 1600,
d. One (1) cement silo and scales;
e. One (1) Griffin Environmental model 54-KS baghouse servicing cement silo; and
f. Breathing bags servicing concrete mixers and cement scales.

Equipment to be added

2. Sand Plants (subcategory of Stone Processing Plant)

h. One (1) Alar Auto Vac Dewatering system

4. Concrete Block Plant II
   a. One (1) Columbia concrete mixer, model 108, 4 yd^3/hr;
   b. One (1) Haarup Model 2250L concrete mixer, 2 yd^3/hr;
   c. Two (2) Columbia block machines; model 1600;
   d. Two (2) cement silos and scales
   e. Two(2) Griffin Environmental model 36-IS baghouse servicing cement silos, and
   f. Breathing bags servicing concrete mixers and cement silos.

Proposed Modification(s):

The proposed permit amendment is to incorporate changes resulting from two separate permit modification application submittals. The applications are as follows:

Modification Application 0244-04 is a minor modification for the addition of a dewatering unit. The dewatering unit is to receive effluent from clarifiers 1 and 2, and separates water from sand fines. The separated fines are routed to the dewatered fines bin for reuse, while the water removed from the process is recycled for use in the watersprays to aid in pollution control. The addition of the dewatering unit will not increase facility emissions. The dewatering unit will be added to the equipment list for the Sand Plant with the following entry:

- One (1) Alar Auto-Vac dewatering system

Modification Application 0244-05 is a significant modification to the existing permit to incorporate the addition of a new concrete block plant adjacent to its existing facility. The equipment to be added consists of the following:

Equipment	Max. Capacity	Fuel Type	Production Capacity	Production Rate	Raw Materials
Columbia Model 108 Concrete Mixer	4 yd^3	n/a	4 yd^3	4 yd^3	Cement, aggregate, water
Haarup Model 2250L Concrete Mixer	2 yd^3	n/a	2 yd^3	2 yd^3	Cement, aggregate, water
Two (2) Columbia Model 1600 Block Machines	4-block	n/a	4-block	4-block	Cement, aggregate, water
Two (2) Griffin Filters Model 36-IS Baghouses[1]	700 cfm	n/a	700 cfm	700 cfm	n/a

[1] each baghouse services one cement silo

Proposed Process:

The process is initiated by transferring fine and coarse aggregate via front end loader to aggregate bins. The material is then transferred by belt conveyors to aggregate scales and to the two mixers. Cement is conveyed from the silos first to batching scales and then to the

mixers. Water is then added to trim the final mix prior to sending the batch to the block making machine. The mixer is totally enclosed to receive aggregates and cement, minimizing emissions. An automated color metering system is also attached to each mixer to produce various colored blocks as needed. Power for plant operations is supplied by the local power grid. The facility also includes some paved and unpaved roadways and a paved yard area.

Air Pollution Controls

Air pollution control for the proposed modification consists of baghouses for the two new cement silos. Each baghouse has 36 bags with a total cloth area of 120 square feet. Typical airflow is 700 actual cubic feet per meter, with a collection efficiency of 99.9%.

Fugitive dust from the stockpiles will be controlled with water sprays from the existing water truck. A waterspray control efficiency of 70% was applied to the stockpile emissions.

Water spray bars are used on the feed material stockpile, radial stacker to fine material stockpile, conveyor to coarse material stockpile, at the material storage area, along a portion of the property fenceline and at the vehicular entrance to the facility. Dust screens are also utilized along parts of the fenceline to prevent fugitive dust from crossing the property lines. A water truck is also employed on site to control fugitive dust emissions generated by stockpiles and vehicle traffic. The paved yard is swept on a daily basis.

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
  - 11-60.1-37 Process Industries
- 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(25) Standards of Performance for Non-metallic Mineral Processing Plants
- Subchapter 10 – Field Citations

Non-Applicable Requirements:

New Source Performance Standards (NSPS):
The new equipment to be incorporated into the existing CSP is not subject to Federal NSPS standards as there are no applicable standards for concrete batch plants.

Prevention of Significant Deterioration (PSD):
PSD applies to major stationary sources located in an attainment area which emit or have the potential to emit 250 TPY (100 TPY for named source categories) of any regulated air pollutant, or to such sources making a major modification involving a significant net emissions increase (e.g., 15 tons per year PM_{10} [HAR 11-60.1-1]). PSD regulations do not apply since this facility is not a major stationary source and the proposed addition does not result in a significant net

emissions increase. Calculations are attached to the technical review for reference.

Net Increase in Facility-Wide PM_{10} Emissions

Description	PM_{10} Emissions(TPY)
Proposed New Block Plant	1.58
Significant Level	15

Best Available Control Technology:
A Best Available Control Technology (BACT) analysis is required for new sources or modifications to existing sources that would result in a net significant increase as defined in HAR, Section 11.60.1-1. The net increase in potential emissions due to the addition of the new concrete block plant does not reach significant levels for PM and PM_{10}, and a BACT determination for this facility is not required.

National Emission Standards for Hazardous Air Pollutants (NESHAPs):
The facility is not subject to any NESHAP regulation since there are no applicable standards for concrete batch plants in 40 CFR Part 61.

Maximum Available Control Technology (MACT) Standards:
MACT is not required because the facility is not a major source or an area source of hazardous air pollutants subject to standards under 40 CFR Part 63.

Compliance Assurance Monitoring (CAM):
Applicability of the CAM Rule (40 CFR Part 64) 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;
5. Be fitted with an “active” air pollution control device; and
6. Not be subject to certain regulations that specifically exempt it from CAM.

Emission units are any part or activity of a stationary source that emits or has the potential to emit any air pollutant.

The facility is not a major covered source, and therefore is not subject to CAM. However, periodic monitoring/inspection will be required to ensure that the active control devices, i.e., Dustvent cyclone with baghouse, cement silo baghouse, concrete mixer and cement scale breathing bags, and water sprays, are working properly.

Annual Emissions Reporting:
Consolidated Emissions Reporting Rule (CERR):
40 CFR Part 51, Subpart A - Emission Inventory Reporting Requirements, determines CER based on facility wide emissions of each air pollutant at the CER triggering levels shown in the following table. The facility does not have any emissions that exceed the CER triggering levels. Therefore, CER requirements do not apply to this facility (See Table 5)

In House Emissions Reporting:
Although CERR for the facility is not triggered, the Clean Air Branch requests annual emissions reporting from those facilities that have facility-wide emissions of a single air pollutant exceeding in-house triggering levels. The total combined facility emissions prior to the addition of the new

batch plant exceeded the in-house triggering level for PM (72.80 TPY) and for PM_{10} (30.17 TPY). The addition of the batch plant increases PM, PM_{10} and HAPs emissions by 3.26, 1.58 and 4.33E-6 tone per year, respectively, and does not cause any additional triggering of reporting levels. Therefore, annual emissions reporting will continue to be required for PM and PM_{10}.

Maximum Emissions vs. Significant Levels, CER, and "In-house" Thresholds (TPY)

Pollutant	Annual Emissions (TPY)	Significant Levels (TPY)	CERR Triggering Levels (TPY)		"In-house" Reporting Levels (TPY)
			1-Year Cycle (Type A Sources)	3-year Cycle (Type B Sources)	
NO_x	5.76	40	≥ 250	≥ 100	≥ 25
CO	0.78	100	≥ 2500	≥ 1000	≥ 250
SO_2	0.55	40	≥ 2500	≥ 100	≥ 25
PM_{10}	31.75	15	≥ 250	≥ 100	≥ 25
PM	76.06	25			≥ 25
VOC	0.21	40	≥ 250	≥ 100	≥ 25
HAPs	4.17E-04	--	--	--	≥ 5

Insignificant Activities/Exemptions:

Insignificant activities identified in conjunction with this modification are as follows:

Equipment	Qty.	Heat Input Capacity	Exemption Basis	Comment
Johnson CurePak SP 5000 steam generator	2	4.5 MMBtu/hr each when fired with LPG	HAR 11-60.1-82(f)(3)(B)	Steam generator with a heat input capacity of less than 5 MMBtu, fired exclusively with liquefied petroleum gas

Additional insignificant activities identified in previous permit applications can be found in previous permit application reviews for this facility.

Alternate Operating Scenarios:

No alternate operating scenarios were proposed in the modification application.

Project Emissions:

To determine the emissions increase from the addition of the concrete batch plant, the emission factors from AP-42, Chapter 11.12, Table 11.12-2, (10/01) were used. Storage pile emission factors were obtained from AP-42, Chapter 13.2.4, Aggregate Handling and storage piles (11/06).

PM emissions from the modification are:

Batch Plant PM Emissions

PRODUCTION RATE =	38.76	T/hr
HOURS OF OPERATION =	8,760	hr/yr
YEARLY PRODUCTION =	339,538	T/yr

ACTIVITY	EF (lb/T)	Control Factor	Controlled Emissions		Uncontrolled Emissions	
			(TPY)	(lb/hr)	(TPY)	(lb/hr)
Aggregate Transfer	0.0069	0.00%	1.17	0.27	1.17	0.27
Sand Transfer	0.0021	0.00%	0.36	0.08	0.36	0.08
Cement Unloading to Silo	0.72	99.90%	0.12	0.03	122.23	27.91

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Aggregate Weigh Hooper Loading	0.0051	0.00%	0.87	0.20	0.87	0.20
Cement Weigh Hopper Loading	0.72	100.00%	0.00	0.00	122.23	27.91
	TOTALS		2.52	0.57	246.86	56.36

Storage Pile PM Emissions

Particle Size Multiplier (k) =	0.71
Mean wind speed, mph (U) =	15
material moisture content, agg, % (M) =	1.77
material moisture content, sand, % (M) =	4.17

Type	EF (lb/T)	Control Factor	Controlled Emissions		Uncontrolled Emissions	
			(TPY)	(lb/hr)	(TPY)	(lb/hr)
Aggregate	1.12E-02	70.00%	0.57	0.13	1.91	0.44
Sand	3.39E-03	70.00%	0.17	0.04	0.58	0.13
	TOTALS		0.75	0.17	2.48	0.57

PM_{10} emissions from the modification are:

Batch Plant PM_{10} Emissions

PRODUCTION RATE =	38.76	T/hr
HOURS OF OPERATION =	8,760	hr/yr
YEARLY PRODUCTION =	339,538	T/yr

ACTIVITY	EF (lb/T)	Control Factor	Controlled Emissions		Uncontrolled Emissions	
			(TPY)	(lb/hr)	(TPY)	(lb/hr)
Aggregate Transfer	0.0033	0.00%	0.56	0.13	0.56	0.13
Sand Transfer	0.00099	0.00%	0.17	0.04	0.17	0.04
Cement Unloading to Silo	0.46	99.90%	0.08	0.02	78.09	17.83
Aggregate Weigh Hooper Loading	0.0024	0.00%	0.41	0.09	0.41	0.09
Cement Weigh Hopper Loading	0.46	100.00%	0.00	0.00	78.09	17.83
	TOTALS		1.21	0.28	157.32	35.92

Storage Pile PM_{10} Emissions

Particle Size Multiplier (k) =	0.35
Mean wind speed, mph (U) =	15
material moisture content, agg, % (M) =	1.77
material moisture content, sand, % (M) =	4.17

Type	EF (lb/T)	Control Factor	Controlled Emissions		Uncontrolled Emissions	
			(TPY)	(lb/hr)	(TPY)	(lb/hr)
Aggregate	5.54E-03	70.00%	0.28	0.06	0.94	0.21
Sand	1.67E-03	70.00%	0.09	0.02	0.28	0.06
	TOTALS		0.37	0.08	1.22	0.28

Hazardous air pollutants due to concrete production are as follows:

Silo Filling w/ Fabric Filter HAP emissions

Pollutant	EF (lb/T)	Production Rate (T/hr)	Hours of Operation	Emissions	
				(TPY)	(lb/hr)
Arsenic	4.24E-09	4.85	8760	9.01E-08	2.06E-08
Beryllium	4.86E-10	4.85	8760	1.03E-08	2.36E-09

Cadmium	4.86E-10	4.85	8760	1.03E-08	2.36E-09
Chromium	2.90E-08	4.85	8760	6.16E-07	1.41E-07
Lead	1.09E-08	4.85	8760	2.32E-07	5.29E-08
Manganese	1.17E-07	4.85	8760	2.49E-06	5.67E-07
Nickel	4.18E-08	4.85	8760	8.88E-07	2.03E-07
			TOTALS	4.33E-06	9.89E-07

The total increase in pollutants due to the modification is:

SUMMARY

Pollutant	Batch Plant	Storage Piles	Silo Filling	Total
PM_{10}	1.21	0.37	0.00	1.58
PM	2.52	0.75	0.00	3.26
HAPS				
Arsenic	0.00	0.00	9.01E-08	9.01E-08
Beryllium	0.00	0.00	1.03E-08	1.03E-08
Cadmium	0.00	0.00	1.03E-08	1.03E-08
Chromium	0.00	0.00	6.16E-07	6.16E-07
Lead	0.00	0.00	2.32E-07	2.32E-07
Manganese	0.00	0.00	2.49E-06	2.49E-06
Nickel	0.00	0.00	8.88E-07	8.88E-07
			Total HAPs	4.33E-06

Synthetic Minor Applicability:

A synthetic minor source is a facility that is potentially major (as defined in HAR 11-60.1-1), but is made nonmajor through federally enforceable permit conditions. This facility is not a synthetic minor based on potential emissions that are less than major source levels when the facility is operated at its maximum capacity (8,760 hours) on an annual basis. The addition of a new concrete batch plant will not cause major source levels to be exceeded.

Air Quality Assessment:

Emissions from the concrete block plant consists of fugitive emissions or emissions from the baghouses. Since both fugitive and baghouse emissions are not steady-state emission points, an ambient air quality analysis is not required for either modification.

Conclusion:

Recommend amending existing permit to allow for modifications. Issuance of amended permit is recommended based on the review of the information provided by the applicant and subject to the significant permit conditions, public comments, and EPA review.

Kevin Kihara
12/17/2007