

COVERED SOURCE PERMIT MINOR MODIFICATION APPLICATION REVIEW

Modification Application No. 0241-05

APPLICANT: Ameron International Corporation, dba Ameron Hawaii
Ameron Hawaii Kapaa Quarry
Stone Processing Facility and Associated Concrete Batch Plant

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RESPONSIBLE OFFICIAL:/POC Ms. Eileen L. Mori-Mishima
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LOCATION Kapaa Quarry
909 Kalaniana'ole Hwy.
Kailua, Hawaii 96734
UTM Coordinates: (Zone 4)
2,366,378 m North; 626,700 m East

POINT OF CONTACT Ms. Linda Goldstein
Manager, Environmental and Community Relations
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SIC 1411 - Dimension stone
3273 - Ready mixed concrete

Proposed Modification:

This application is for a minor modification to existing covered source permit (CSP) No. 0241-01-C. The application seeks to permit the replacement of the existing concrete batch plant. If approved, the existing plant will be replaced with a new batch plant of identical capacity (300 yd³/hour). The new concrete batch plant increases the number of baghouses used to provide air pollution control. The new concrete batch plant will be powered off of the electrical grid. The modification is classified as a minor modification for the following reasons:

1. Does not increase the emissions of any air pollutant above the permitted emission limits;
2. Does not result in or increase the emissions of any air pollutant not limited by permit to levels equal to or above:
 - a. five hundred (500) pounds per year of a hazardous air pollutant;
 - b. twenty-five (25) percent of significant amounts of emission as defined in section 11-60.1-1, paragraph (1) in the definition of "significant";
 - c. five (5) tons per year of carbon monoxide; or
 - d. two (2) tons per year of each regulated air pollutant other than carbon monoxide;
3. Does not violate any applicable requirement;
4. Does not involve significant changes to existing monitoring requirements or any relaxation or significant change to existing reporting or recordkeeping requirements in the permit. Any change to the existing monitoring, reporting, or recordkeeping requirements that reduces the enforceability of the permit is considered a significant change;

PROPOSED

5. Does not require or change a case-by-case determination of an emission limitation or other standard, a source-specific determination for temporary sources of ambient impacts, or a visibility or increment analysis;
6. Does not seek to establish or change a permit term or condition for which there is no corresponding underlying applicable requirement, and that the source has assumed to avoid an applicable requirement to which the source would otherwise be subject. Such terms and conditions include:
 - a. A federally enforceable emissions cap assumed to avoid classification as a modification pursuant to any provision of Title I of the Clean Air Act or Hawaii Administrative Rules, Chapter 11-60.1, subchapter 7; and
 - b. An alternative emissions limit approved pursuant to regulations promulgated pursuant to Section 112(i)(5) of the Act or subchapter 9; and
7. Is not a modification pursuant to any provision of Title I of the Clean Air Act.

The facility currently consists of a stone processing facility and a concrete batch plant. The primary functions of the facility are quarrying and aggregate processing, classified as Standard Industrial Classification Code (SICC) 1411. The concrete batch plant is classified as SICC 3273. No changes have been proposed to the remainder of the permitted equipment.

Permit Amendments

The amendments to the permit as a result of the modification are:

Attachment II, Special Condition A.2 will be changed from:

2. Concrete Batch Plant

- a. One (1) 300 yd³/hour REX concrete batcher, Model LO GO 12;
- b. One (1) 54 ton cement silo;
- c. One (1) 100 ton Rex cement silo;
- d. One (1) 45 yd³ Rex aggregate bin;
- e. One (1) Dune sand tank;
- f. Two (2) 15 pound/hour Griffin cement weigh batcher vents, Model 18CDS;
- g. Two (2) 15 pound/hour Griffin silo filter vents, Model 36KS;
- h. One (1) C&W baghouse for premix drum, Model CW-RA-140 (BH_DRUM); and
- i. One (1) 75 kW Detroit Diesel back-up generator, Model 6V71T.

to the following:

2. Concrete Batch Plant

- a. One (1) 300 yd³/hour REX concrete batcher with CON-E-CO 12-yard tilt mixer
- b. One (1) 100 ton 2-compartment cement silo (new);
- c. One (1) 100 ton 2-compartment cement silo (existing)
- d. One (1) 90 yd³ Rex 4-compartment aggregate bin;
- e. One (1) Dune sand tank;
- f. One (1) CON-E-CO Model 22-36 cement batcher vent;
- g. Four (4) CON-E-CO Model PJC-300S silo filter vents;
- h. One (1) CON-E-CO Model PJ-980D premix drum baghouse (upgrade BH_DRUM); and
- i. One (1) 75 kW Detroit Diesel back-up generator, Model 6V71T.

Attachment II, Special Condition D.5.a will be changed from:

5. Visible Emissions

- a. For any six (6) minute averaging period, the stone processing facility and concrete batch plant, excluding crushers CR10 and CR11 and diesel engines DE3 and DE4, shall not exhibit visible emissions of forty (40) percent or greater, except as follows: during start-up, shutdown, or equipment breakdown, the stone processing plant and concrete batch plant may exhibit visible emissions greater than forty (40) but not exceeding sixty (60) percent opacity for a period aggregating not more than six (6) minutes in any sixty (60) minute period.

to the following:

5. Visible Emissions

- a. For any six (6) minute averaging period, the stone processing facility, excluding crushers CR10 and CR11 and diesel engines DE3 and DE4, shall not exhibit visible emissions of forty (40) percent or greater, except as follows: during start-up, shutdown, or equipment breakdown, the stone processing plant and concrete batch plant may exhibit visible emissions not greater than sixty (60) percent opacity for a period aggregating not more than six (6) minutes in any sixty (60) minute period.

Attachment II, Special Condition D.5.b will be changed from:

5. Visible Emissions

- b. For any six (6) minute averaging period, the diesel engines DE3 and DE4 shall not exhibit visible emissions of twenty (20) percent or greater, except as follows: during start-up, shutdown, or equipment breakdown, the stone processing plant and concrete batch plant may exhibit visible emissions greater than twenty (20) but not exceeding forty (40) percent opacity for a period aggregating not more than six (6) minutes in any sixty (60) minute period.

to the following:

5. Visible Emissions

- b. For any six (6) minute averaging period, the concrete batch plant and the diesel engines DE3 and DE4 shall not exhibit visible emissions of twenty (20) percent or greater, except as follows: during start-up, shutdown, or equipment breakdown, the stone processing plant and concrete batch plant may exhibit visible emissions not greater than sixty (60) percent opacity for a period aggregating not more than six (6) minutes in any sixty (60) minute period.

The visible emissions limit for the concrete batch plant has been revised because the new concrete batch plant commenced construction after March 20, 1972.

Process Description

CONCRETE BATCH PLANT

Material is conveyed from the Mansand Plant to the overhead storage bin of the Concrete Batch Plant. Material is weighed, enters the hopper, and then the pre-mix drum which vents to a baghouse. Cement blend is added into the pre-mix drum from one of two silos then loaded into ready-mix trucks. The cement silos are filled pneumatically by contractor's trucks or by conveyors if the blend is made onsite, and each silo is vented to a baghouse. An electric chiller is used to prevent the concrete from setting and a 75 kW diesel generator is used for backup. The concrete is then transported offsite by the ready-mix trucks.

Air Pollution Control:

Air pollution control at the existing concrete batch plant consists of five baghouses, located at the cement weigh batcher (FV-WB), cement silos (FV-SILO) and at the drum mix baghouse (BH_DRUM). The new concrete batch plant will have six baghouses. The baghouses have a control efficiency of 99%.

Operational Limits:

The existing batch plant was limited by a permit condition to operate no more than 4,992 hours of operation per rolling twelve (12) month period, and no more than sixteen (16) hours of operation per day. The limits will be transferred to the new batch plant.

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

11-60.1-38 Sulfur Oxides from Fuel Combustion

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 Standards of Performance for Non-metallic Mineral Processing Plants

Subchapter 10 Field Citations

New Source Performance Standards:

Concrete batch plants not regulated by 40 CFR part 60.

Prevention of Significant Deterioration (PSD):

PSD applies to new stationary sources 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.

PROPOSED

The replacement of the existing 300 yd³/hr concrete batch plant with a new concrete batch plant of identical capacity will not increase potential emissions above the significant net emissions increase for particulate matter. Therefore, a PSD review is not required for the minor modification.

Best Available Control Technology (BACT):

A BACT analysis is required for new sources or modifications to existing sources that would result in a significant net emissions increase as defined in HAR, Section 11.60.1-1. The replacement of the concrete batch plant with one of equal capacity will not increase potential emissions past significant net emissions limits for particulate matter. Therefore, a BACT analysis is not required for the modification.

National Emission Standards for Hazardous Air Pollutants (NESHAP):

The facility is not subject to any NESHAP requirement as there are no standards for concrete batch plants in 40 CFR Part 61.

Maximum Available Control Technology (MACT) Standards:

The facility is not subject to any MACT standards since the facility is not a major source of hazardous air pollutants and does not belong to a source category for which a standard has been promulgated under 40 CFR, Part 63.

Compliance Assurance Monitoring (CAM):

The existing concrete batch plant was not subject to CAM. The replacement concrete batch plant is not subject to an emission limitation or standard, and therefore is not subject to CAM requirements.

Air Emissions Reporting Requirements:

The facility is currently a type B source pursuant to 40 CFR Part 51, Subpart A, Air Emissions Reporting Requirements. Consolidated Emissions Reporting Rule (CERR). The replacement of the concrete batch plant will not increase emissions, and the facility will remain a type B source.

Insignificant Activities/Exemptions:

No modifications to the insignificant activity list were proposed in conjunction with the application. The insignificant activity list remains unchanged from the last permit renewal. Refer to review of permit renewal for list of insignificant activities.

Alternate Operating Scenarios:

No additional alternate operating scenarios have been proposed by the applicant. The existing permit allows for the replacement of a crusher or screen with equipment of the same make, model, and size.

Project Emissions:

Emissions from the existing concrete batch plant were based on the maximum production rate of 300 cubic yards per hour. The new batch plant is also rated at 300 cubic yards per hour. Therefore, the calculated emissions for the new batch plant are identical to the existing batch plant. The emissions from the concrete batch plant at the permit renewal were:

PROPOSED

PRODUCTION RATE = 300 cubic yards per hour
 HOURS OF OPERATION = 4,992 hr/yr
 YEARLY PRODUCTION = 1,497,600 Cubic yards/year
 603.60 Tons/hr 1 cy concrete = 4024 pounds

EMISSIONS OF PARTICULATE MATTER

ACTIVITY	MAXIMUM RATE (yd ³ /hr)	UNCONTROLLED EF (lb/yd ³)	CONTROL FACTOR	POTENTIAL		ACTUAL	
				(lb/hr)	(TPY)	(lb/hr)	(TPY)
Aggregate delivery to ground storage	300	0.0064	0.70	0.58	2.52	0.58	1.44
Sand delivery to ground storage	300	0.0015	0.70	0.14	0.59	0.14	0.34
Aggregate transfer to conveyor	300	0.0064	0.70	0.58	2.52	0.58	1.44
Sand transfer to conveyor	300	0.0015	0.70	0.14	0.59	0.14	0.34
Aggregate transfer to elevated storage	300	0.0064	0.99	0.02	0.08	0.02	0.05
Sand transfer to elevated storage	300	0.0015	0.99	4.50E-03	1.97E-02	4.50E-03	1.12E-02
Cement delivery to silo	300	0.0002	0.99	6.00E-04	2.63E-03	6.00E-04	1.50E-03
Cement supplement delivery to silo	300	0.0003	0.99	9.00E-04	3.94E-03	9.00E-04	2.25E-03
Weigh hopper loading	300	0.0079	0.99	0.02	0.10	0.02	0.06
Truck mix loading	300	0.0441	0.70	3.97	17.40	3.97	9.92
TOTALS				5.44	23.84	5.44	13.59

Assumptions/Analysis

- Emission factors from AP-42 table 11.12-2, reformatted 6/06.
- Controls included:
 - 1) Waterspray and wet bag barrier for sand and agg. transfer
 - 2) Two baghouses for cement silo (30 bags each)
 - 3) Waterspray for weigh hopper
 - 4) Waterspray and baghouse for the mixer (140 bags).
- Assumed 1 cubic yard concrete = 4,024 pounds.

Metal emissions from the concrete batch plant are:

Concrete Batch Plant Metall Emissions Summary (TPY)

Pollutant	Silo Filling	Supplement Silo Filling	Central Mix Batching	Truck Loading	Total
As	6.39E-06	1.51E-03	4.46E-04	9.07E-04	2.87E-03
Be	7.32E-07	1.36E-04	0.00E+00	1.57E-04	2.94E-04
Cd	3.53E-04	2.98E-07	1.07E-06	1.36E-05	3.68E-04
Cr	4.37E-05	1.84E-03	1.91E-04	6.18E-03	8.25E-03
Pb	1.64E-05	7.83E-04	5.51E-05	2.31E-03	3.16E-03
Mg	1.76E-04	3.86E-04	5.69E-03	3.13E-02	3.76E-02
Ni	6.30E-05	3.44E-03	3.74E-04	7.20E-03	1.11E-02
Ph	1.78E-02	5.33E-03	1.81E-03	1.85E-02	4.34E-02
Se	0.00E+00	1.09E-04	0.00E+00	1.70E-04	2.79E-04

Synthetic Minor Applicability:

The facility is a major source. Since the facility is a major source, it is not a synthetic minor source.

Air Quality Assessment:

The concrete batch plant is classified as an intermittent source since it operates on an as needed basis to load trucks for delivery. Since it is an intermittent source, an ambient air quality assessment is not required.

PROPOSED

Significant Permit Conditions:

No significant permit conditions have been added to the current permit due to this minor modification.

Conclusion:

The facility complies with all state and federal standards with regard to air pollution. Recommend approval of covered source permit modification subject to forty-five-day (45-day) EPA review.

Kevin Kihara
August 26, 2013