

CATEGORY:

MISCELLANEOUS

BACT Size: Small Emitter BACT (PTE < 10 lb/day)

CONCRETE RECYCLER

BACT Determination Number: 146	BACT Determination Date: 4/5/2018
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Equipment Information

Permit Number: 24381
Equipment Description: CONCRETE RECYCLER
Unit Size/Rating/Capacity:
Equipment Location: RIVER CITY WASTE RECYCLERS, LLC
 10286 WATERMAN RD
 ELK GROVE, CA

BACT Determination Information

ROCs	Standard:	
	Technology Description:	
	Basis:	
NOx	Standard:	
	Technology Description:	
	Basis:	
SOx	Standard:	
	Technology Description:	
	Basis:	
PM10	Standard:	
	Technology Description:	Use of water sprays on crushers, screens, transfer points and storage piles as necessary to show compliance with the most stringent 40 CFR Subpart 000 opacity limitations.
	Basis:	Achieved in Practice
PM2.5	Standard:	
	Technology Description:	Use of water sprays on crushers, screens, transfer points and storage piles as necessary to show compliance with the most stringent 40 CFR Subpart 000 opacity limitations.
	Basis:	Achieved in Practice
CO	Standard:	
	Technology Description:	
	Basis:	
LEAD	Standard:	
	Technology Description:	
	Basis:	

Comments: This BACT is for a stationary concrete recycling operation.

District Contact: Felix Trujillo Phone No.: (916) 874 - 7357 email: ftrujillo@airquality.org



BEST AVAILABLE CONTROL TECHNOLOGY DETERMINATION

DETERMINATION NO.: 146
DATE: April 5, 2018
ENGINEER: Felix Trujillo, Jr.

Category/General Equip Description: Miscellaneous
Equipment Specific Description: Stationary Concrete Recycling
Equipment Size/Rating: Small Emitter BACT (< 10 lb/day)
Previous BACT Det. No.: None

This BACT determination will be made for a stationary concrete recycling operation including crushing, screening, stacking, conveying equipment and stockpiles with PM10 and PM2.5 less than 10 lb/day.

This BACT was determined under the project for A/C's 24381 and 24382 (River City Waste Recyclers, LLC).

BACT ANALYSIS

A: ACHIEVED IN PRACTICE (Rule 202, §205.1a)

The following control technologies are currently employed as BACT for stationary concrete recycling operations:

District/Agency	Best Available Control Technology (BACT)/Requirements
US EPA	<u>BACT</u> Source: EPA RACT/BACT/LAER Clearinghouse
	Stationary Concrete Recycling Operation
	VOC No standard
	NOx No standard
	SOx No standard
	PM10 No standard
	PM2.5 No standard
	CO No standard

District/Agency	Best Available Control Technology (BACT)/Requirements														
US EPA	<p><u>RULE REQUIREMENTS:</u> 40 CFR 60 Subpart OOO – Standards of Performance for Nonmetallic Mineral Processing Plants</p> <p>This regulation applies to fixed or portable nonmetallic mineral processing plants that include crushing or grinding equipment with capacities of 25 tons/hr or 150 tons/hr, respectively.</p> <p>This regulation includes two separate opacity limitations based on the construction, modification or reconstruction date of the equipment. Pursuant to 40 CFR Subpart A Section 60.2 (Definitions), installation is included under the definition of construction. For equipment that was installed after April 22, 2008, are subject to an opacity limit of 7% for screening and conveyor transfer points and 12% for crushers. Equipment installed after April 22, 2008, are also required to do monthly inspections on their water spray equipment. A Method 9 (Visible Emissions) source test is required for verification of compliance with the opacity limitations of the NSPS.</p> <p>For equipment that is served by a baghouse, the regulation sets a PM standard of 0.014 gr/dscf (Section 60.672(a)). The regulation requires an initial source test to verify compliance with this limit (Section 60.675(b)(1)). Section 60.674(c) requires quarterly 30-minute visible emissions inspections using EPA Method 22 or the use of a bag leak detection system (Section 60.674(d)).</p>														
ARB	<p><u>BACT</u> Source: ARB BACT Clearinghouse</p> <table border="1" data-bbox="431 1226 1393 1539"> <tr> <td colspan="2">ARB BACT Clearinghouse</td> </tr> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </table> <p><u>RULE REQUIREMENTS:</u> None</p>	ARB BACT Clearinghouse		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
ARB BACT Clearinghouse															
VOC	No standard														
NOx	No standard														
SOx	No standard														
PM10	No standard														
PM2.5	No standard														
CO	No standard														
SMAQMD	<p><u>BACT</u> Source: SMAQMD BACT Clearinghouse (http://www.airquality.org/businesses/permits-registration-programs/best-available-control-technology-(bact)))</p>														

District/Agency	Best Available Control Technology (BACT)/Requirements														
SMAQMD	<table border="1" data-bbox="440 289 1398 604"> <tr> <td colspan="2">Stationary Concrete Recycling Operation</td> </tr> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </table> <p data-bbox="440 632 1409 905">The SMAQMD BACT Clearinghouse does not have an existing BACT for stationary concrete recycling operations. BACT No. 41 applies to aggregate processing plants, which are similar type of operations. But the BACT was determined for minor sources. Prior to the 10/28/10 version of District Rule 202 (New Source Review Rule), the District had a BACT threshold of 10 lb/day. Therefore, no small emitter BACTs were determined as none were required. It was only after the implementation of the 0 lb/day BACT threshold, that the District started to develop small emitter BACTs for the smaller sources. Therefore, the more restrictive BACT No. 41 will not be referenced for this BACT determination.</p> <p data-bbox="440 936 732 999"><u>RULE REQUIREMENTS:</u> None</p>	Stationary Concrete Recycling Operation		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
Stationary Concrete Recycling Operation															
VOC	No standard														
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SOx	No standard														
PM10	No standard														
PM2.5	No standard														
CO	No standard														
South Coast AQMD	<p data-bbox="440 1056 1365 1119"><u>BACT</u> Source: <u>SCAQMD BACT Guidelines for Non-Major Polluting Facilities</u>, page 13.</p> <table border="1" data-bbox="440 1136 1398 1451"> <tr> <td colspan="2">Stationary Concrete Recycling Operation</td> </tr> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </table> <p data-bbox="440 1486 1409 1915">The SCAQMD BACT trigger level is 1 lb/day. Therefore, the SCAQMD BACT Clearinghouse was reviewed as part of this BACT determination. There is no specific BACT guideline for concrete recycling. The SCAQMD does include a BACT for Rock-Aggregate processing with an all rating (SCAQMD BACT Guidelines for Non-Major Polluting Facilities 10/20/00), page 104) that lists a baghouse venting a crusher and water sprays at other material transfer points. The District contacted SCAQMD to determine if they apply this BACT to concrete recycling operations. SCAQMD responded on 2/22/18 stating these are just guidelines and the guideline could be used for concrete recycling operations. But if a facility can demonstrate that it is not feasible then they can do a case-by-case determination. SCAQMD stated they have accepted water sprays only as BACT for these types of operations. Since they have allowed the use of water sprays for these types of operations, the use of a baghouse will be deemed as technologically feasible for concrete recycling operations.</p>	Stationary Concrete Recycling Operation		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
Stationary Concrete Recycling Operation															
VOC	No standard														
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PM2.5	No standard														
CO	No standard														

District/Agency	Best Available Control Technology (BACT)/Requirements														
South Coast AQMD	<p><u>RULE REQUIREMENTS:</u> None</p>														
San Diego County APCD	<p><u>BACT</u> Source: <u>NSR Requirements for BACT, page 3-22.</u></p> <table border="1" data-bbox="435 499 1372 825"> <thead> <tr> <th colspan="2">Stationary Concrete Recycling Operation</th> </tr> </thead> <tbody> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </tbody> </table> <p>The SDCAPCD has a BACT trigger level of 10 lb/day. Therefore, the SDAPCD BACT clearinghouse will not be referenced for this BACT.</p> <p><u>RULE REQUIREMENTS:</u> None</p>	Stationary Concrete Recycling Operation		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
Stationary Concrete Recycling Operation															
VOC	No standard														
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Bay Area AQMD	<p><u>BACT</u> Source: <u>BAAQMD BACT Guideline</u></p> <table border="1" data-bbox="435 1192 1401 1518"> <thead> <tr> <th colspan="2">Stationary Concrete Recycling Operation</th> </tr> </thead> <tbody> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </tbody> </table> <p>The BAAQMD has a BACT trigger level of 10 lb/day. Therefore, the BAAQMD BACT clearinghouse will not be referenced for this BACT.</p> <p><u>RULE REQUIREMENTS:</u> None</p>	Stationary Concrete Recycling Operation		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
Stationary Concrete Recycling Operation															
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PM10	No standard														
PM2.5	No standard														
CO	No standard														

District/Agency	Best Available Control Technology (BACT)/Requirements														
San Joaquin Valley APCD	<p>BACT Source: <u>SJVUAPCD BACT Guideline (Rescinded)</u></p> <table border="1" data-bbox="431 359 1398 709"> <thead> <tr> <th colspan="2">Stationary Concrete Recycling Operation</th> </tr> </thead> <tbody> <tr> <td>VOC</td> <td>No standard</td> </tr> <tr> <td>NOx</td> <td>No standard</td> </tr> <tr> <td>SOx</td> <td>No standard</td> </tr> <tr> <td>PM10</td> <td>No standard</td> </tr> <tr> <td>PM2.5</td> <td>No standard</td> </tr> <tr> <td>CO</td> <td>No standard</td> </tr> </tbody> </table> <p>The SJVAPCD BACT trigger level is 2 lb/day. Therefore, the SJVAPCD BACT Clearinghouse was reviewed as part of this BACT determination. BACT Guideline 6.1.4 addressed asphalt and concrete recycling (≥ 450 tons processed/hr), but listed the use of a baghouse serving a crusher and the use of water sprays at other transfer points as being technologically feasible. The District contacted the SJVAPCD via email (5/26/16 to Jag Kahlon – SJVAPCD Northern Region Air Quality Engineer) and asked if the A/C permit (S-1926-1-0, Project #930258) had been converted to a permit. The response was that no permit was ever issued for that operation.</p> <p>BACT Guideline 6.1.1 applies to aggregate crushing, screening & storage for operations with process rates $\geq 5,850$ tons/day.</p>	Stationary Concrete Recycling Operation		VOC	No standard	NOx	No standard	SOx	No standard	PM10	No standard	PM2.5	No standard	CO	No standard
	Stationary Concrete Recycling Operation														
	VOC	No standard													
	NOx	No standard													
	SOx	No standard													
	PM10	No standard													
	PM2.5	No standard													
	CO	No standard													

The following control technologies have been identified as the most stringent, achieved in practice control technologies:

BEST CONTROL TECHNOLOGIES ACHIEVED		
Pollutant	Standard	Source
VOC	No Standard	
NOx	No Standard	
SOx	No Standard	
PM10	Use of water sprays on crushers, screens, conveyors, transfer points and storage piles as necessary to show compliance with the most stringent 40 CFR Subpart OOO opacity limitations.	SCAQMD, EPA
PM2.5	No standard	
CO	No Standard	

B. TECHNOLOGICALLY FEASIBLE AND COST EFFECTIVE (Rule 202, §205.1.b.):

Technologically Feasible Alternatives:

Any alternative basic equipment, fuel, process, emission control device or technique, singly or in combination, determined to be technologically feasible by the Air Pollution Control Officer.

The table below shows the technologically feasible alternatives identified as capable of reducing emissions beyond the levels determined to be "Achieved in Practice" as per Rule 202, §205.1.a.

Pollutant	Technologically Feasible Alternatives
VOC	Not applicable
NOx	Not applicable
SOx	Not applicable
PM10	Enclosure of crushers, screens, conveyors and transfer points and vented to a baghouse (A)(B)
PM2.5	No other technologically feasible option identified (A)(B)
CO	Not applicable

(A) This is listed as a technologically feasible BACT in the BAAQMD BACT Document #144.1 for rock and aggregate processing.

(B) Although the use of enclosed conveyors, screens and transfer points can be listed in this section, a review of portable concrete recycling operation's Method 9 test results show water sprays to be as effective in controlling particulate emissions from conveyors, screens and conveyor transfer points (see Attachment B). Therefore, enclosure of these equipment is not necessary for small emitters.

Cost Effectiveness Analysis Summary

The cost analysis was processed in accordance with the EPA OAQPS Air Pollution Control Cost Manual (Sixth Edition). The sales tax rate was based on the District's standard rate of 8.5% as approved on 10/17/16. The electricity (11.24 cents/kWh) rate were based on an industrial application as approved by the District on 10/17/16. The life of the equipment was based on the EPA cost manual recommendation. The interest rate was based on the previous 6-month average interest rate on United States Treasury Securities (based on the life of the equipment) and addition of two percentage points and rounding up the next higher integer rate. The labor (Occupation Code 51-9021: Crushing, grinding, and polishing machine setters, operators and tenders) and maintenance (Occupation Code 49-9099: Installation, maintenance, and repair workers, all others) rates were based on data from the Bureau of Labor Statistics.

Background:

BAAQMD BACT Document 144.1 – Rock and Aggregate Processing, includes the enclosure of crushers, screens, conveyors and transfer points served by a baghouse. A cost effectiveness determination will be performed in order to determine if it is cost effective to enclose the screen, conveyors and transfer points and have them served by a baghouse. Only the addition of a baghouse will be used to determine if the additional control is cost effective. The EPA cost manual will be used to determine the cost of the baghouse. The enclosure of the equipment and ducting would only add to the cost of the system.

Enclosure of crusher, screen, conveyors and transfers points served by a baghouse:

Equipment Life = 20 years

Total Capital Investment = \$61,108.85

Annualized Total Capital Investment = \$4,903.53 per year

Direct Annual Cost = \$11,771.73 per year

Indirect Annual Cost = \$6,460.62 per year

Total Annual Cost = \$23,135.87 per year

PM10 Removed = 1.825 tons per year

Cost of PM10 Removal = \$12,677.19 per ton reduced

A detailed calculation of the cost effectiveness for PM10 removal with a baghouse is shown in Appendix C. As shown above, the cost of enclosing the equipment and venting the emissions to a baghouse is not cost effective.

Using the PM10 BACT standard for PM2.5:

Since both, PM10 and PM2.5 trigger BACT at > 0 lb/day and PM2.5 is a subset of PM10, BACT for PM2.5 will be triggered whenever BACT is triggered for PM10. Therefore, BACT for PM2.5 will be set to be the same as for PM10.

C. SELECTION OF BACT:

Small emitter BACT (< 10 lb/day) for a stationary concrete recycling operation is the following:

BACT FOR STATIONARY CONCRETE RECYCLING (< 10 LB PM10, PM2.5/DAY)		
Pollutant	Standard	Source
VOC	NA	NA
NOx	NA	NA
SOx	NA	NA
PM10	Use of water sprays on crushers, screens, conveyors, transfer points and storage piles as necessary to show compliance with the most stringent 40 CFR Subpart OOO opacity limitations.	SCAQMD, EPA
PM2.5	Use of water sprays on crushers, screens, conveyors, transfer points and storage piles as necessary to show compliance with the most stringent 40 CFR Subpart OOO opacity limitations.	SCAQMD, EPA
CO	NA	NA

REVIEWED BY: _____ DATE: _____

APPROVED BY:  _____ DATE: 4/5/18

Attachment A

Review of BACT Determination

SOUTH COAST AIR QUALITY MANAGEMENT DISTRICT
Best Available Control Technology (BACT) Guidelines for Non-Major Polluting Facilities*

10-20-2000 Rev. 0

Equipment or Process: Rock - Aggregate Processing

Rating/Size	Criteria Pollutants					Inorganic
	VOC	NOx	SOx	CO	PM ₁₀	
All					Baghouse Venting Jaw Crushers, Cone Crushers, and Material Transfer Points Adjacent to and after these Items; and Water Sprays at Other Material Transfer Points (1990)	

* Means those facilities that are not major polluting facilities as defined by Rule 1302 - Definitions

Attachment B

EPA Method 9 Test Results for Concrete Recycling Operations

VISIBLE EMISSION OBSERVATION FORM

Company Name
Granite Construction Co

Street Address
12300 White Rock Rd

City
Rancho Cordova State
CA Zip
95742

Phone
916 417 5305 Source ID Number
90.17659R

Process Equipment
Powercracker Warride Operating Mode

Control Equipment
Operating Mode

Describe Emission Point
Final Silo Conveyor

Height Above Ground Level
5' Height Relative to Observer
Start: *2'* End: *2'*

Distance from Observer
Start: *25'* End: *25'* Direction from Observer
Start: *N* End: *N*

Describe Emissions
Start: *None* End: *None*

Emission Color
Start: *None* End: *None* If Water Droplet Plume
Attached Detached

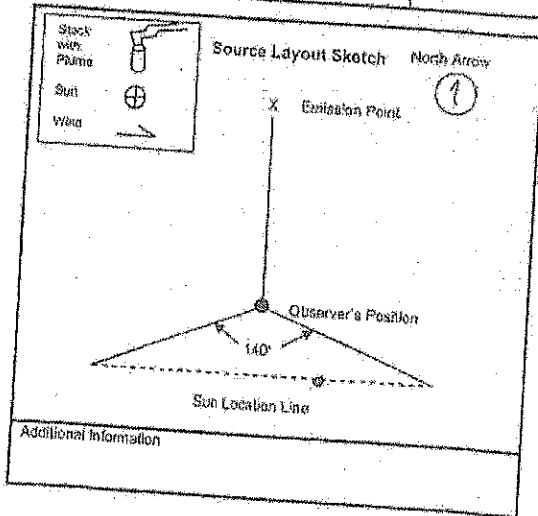
Point in plume at which opacity was determined
Start: End:

Describe Plume Background
Start: *Blue* End: *Equipment/Blue*

Background Color
Start: *Blue* End: *Blue* Sky Conditions
Start: *Clear* End: *Clear*

Wind Speed
Start: *5* End: *5* Wind Direction
Start: *NW* End: *NW*

Ambient Temp
Start: *40°F* End: *40°F* Wet Bulb Temp RH, Percent



Sec. Min.	Observation Date <i>1-24-13</i>				Start Time <i>10:00AM</i>	End Time <i>10:30AM</i>	Comments
	0	15	30	45			
1	0	0	0	0			
2	0	0	0	0			
3	0	0	0	0			
4	0	0	0	0			
5	0	0	0	0			
6	0	0	0	0			
7	0	0	0	0			
8	0	0	0	0			
9	0	0	0	0			
10	0	0	0	0			
11	0	0	0	0			
12	0	0	0	0			
13	0	0	0	0			
14	0	0	0	0			
15	0	0	0	0			
16	0	0	0	0			
17	0	0	0	0			
18	0	0	0	0			
19	0	0	0	0			
20	0	0	0	0			
21	0	0	0	0			
22	0	0	0	0			
23	0	0	0	0			
24	0	0	0	0			
25	0	0	0	0			
26	0	0	0	0			
27	0	0	0	0			
28	0	0	0	0			
29	0	0	0	0			
30	0	0	0	0			

Observers Name (Print)
Charles Hawkins

Observer's Signature
[Signature] Date
1-24-13

Organization
GCCO

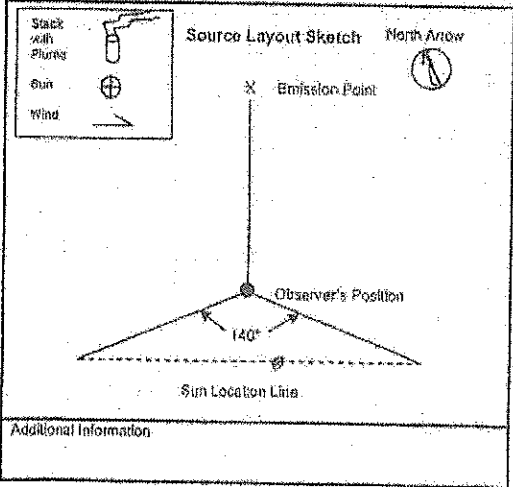
Certified By
Date

Continued on VEO form Number

VISIBLE EMISSION OBSERVATION FORM

Company Name <i>Granite Construction Co.</i>		
Street Address <i>12300 White Rock Rd.</i>		
City <i>Rancho Cordova</i>	State <i>CA</i>	Zip <i>95742</i>
Phone <i>916 417 5309</i>	Source ID Number <i>90.13669R</i>	
Process Equipment <i>Powersonic Warrior</i>	Operating Mode	
Control Equipment	Operating Mode	
Describe Emission Point <i>Middle Deck Side Conveyor</i>		
Height Above Ground Level <i>2'</i>	Height Relative to Observer Start: <i>2'</i> End: <i>2'</i>	
Distance from Observer Start: <i>20'</i> End: <i>20'</i>	Direction from Observer Start: <i>NE</i> End: <i>NE</i>	
Describe Emissions Start: <i>None</i> End: <i>None</i>		
Emission Color Start: <i>None</i> End: <i>None</i>	If Water Droplet Plume Attached <input type="checkbox"/> Detached <input type="checkbox"/>	
Point in plume at which opacity was determined Start: End:		
Describe Plume Background Start: <i>Earth Material</i> End: <i>Same</i>		
Background Color Start: <i>Greenish</i> End: <i>Same</i>	Sky Conditions Start: <i>Clear</i> End: <i>Clear</i>	
Wind Speed Start: <i>5mph</i> End: <i>5mph</i>	Wind Direction Start: <i>NW</i> End: <i>NW</i>	
Ambient Temp Start: <i>50</i> End: <i>50</i>	Wet Bulb Temp	RH Percent

Observation Date <i>1-24-13</i>				Start Time <i>2:10 PM</i>	End Time <i>2:40 PM</i>	Comments
Sec Min	0	15	30	45		
1	0	0	0	0		
2	0	0	0	0		
3	0	0	0	0		
4	0	0	0	0		
5	0	0	0	0		
6	0	0	0	0		
7	0	0	0	0		
8	0	0	0	0		
9	0	0	0	0		
10	0	0	0	0		
11	0	0	0	0		
12	0	0	0	0		
13	0	0	0	0		
14	0	0	0	0		
15	0	0	0	0		
16	0	0	0	0		
17	0	0	0	0		
18	0	0	0	0		
19	0	0	0	0		
20	0	0	0	0		
21	0	0	0	0		
22	0	0	0	0		
23	0	0	0	0		
24	0	0	0	0		
25	0	0	0	0		
26	0	0	0	0		
27	0	0	0	0		
28	0	0	0	0		
29	0	0	0	0		
30	0	0	0	0		



Observer Name (Print) <i>Charles Hawkins</i>	
Observer's Signature <i>[Signature]</i>	Date <i>1-24-13</i>
Organization <i>GCCO</i>	
Certified By	Date
Continued on VEO form number	

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

SOURCE TEST REPORT

NAME OF APPLICANT: A & A Concrete **SOURCE TEST DATE(S):** August 7, 2008
MAILING ADDRESS: 8272 Berry Avenue **PERMIT NO.:** 21283
 Sacramento, CA 95828
EQUIPMENT LOCATION (ADDRESS): 8272 Berry Avenue, Sacramento, CA 95828
SOURCE TESTER: John Fittell

DATE CONSTRUCTION AUTHORIZED: July 29, 2008

TYPE OF TEST:	INITIAL	ROUTINE	FOLLOW-UP	WEATHER	WIND DIRECTION & VELOCITY
	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	Clear skies	0-1 mph

USUAL OPERATING SCHEDULE FOR THIS EQUIPMENT: 14 hours/day, 575 hours/quarter, and 575 hours/year

NAMES AND TITLES OF PERSONS CONTACTED: Dan Barber, D.K. Barber P.E. & Associates

REMARKS: A source test was performed on the portable rock crushing plant located at 8272 Berry Avenue, Sacramento. The crusher was tested at an hourly process rate of 90 to 95 tons/hour. The equipment was verified and the following deviations from the A/C were observed: a) the two deck screen was 5' x 11' rather than 4' x 10'; b) the crusher engine was different than permitted; and c) the smaller, stacker engine was 85 hp rather than 73 hp. The changes were noted in the inspection reports and the evaluation was amended to account for the changes.

The following test was performed.

1. EPA Method 9 – Visible Emissions – Opacity

The visual emissions (VE) reader was certified by the Air Resources Board. His VE certificate was current and had an expiration date of December 19, 2003. The equipment complies with the opacity limitations as indicated in the summary below.

Location No.	Emission Point	Opacity Limit (%)	Maximum 15 second Reading	Pass
1	Receiving Pan & Vibrating Grizzly	10	10	Yes
2	Conveyor Under Crusher	10	0	Yes
3	2 Deck Screen	10	0	Yes
4	Conveyor Under Screen	10	10	Yes
5	Crusher Impact 4242	15	10	Yes
6	Conveyor Return to Crusher	10	0	Yes
7	Conveyor (cross) from Lower Screen Deck	10	0	Yes
8	Conveyor Product Stacker	10	0	Yes

REVIEWING ENGR:

AC [Signature] 7-6-10

PERMIT ENGR: Jeff Weiss

SACRAMENTO METROPOLITAN AIR QUALITY MANAGEMENT DISTRICT

FIELD INSPECTION REPORT

<input checked="" type="checkbox"/> I have read and am familiar with the safety equipment necessary to inspect this source as listed in the ACode of Safe Practices-Field Staffs in the Safety Manual.	<input checked="" type="checkbox"/> I asked the source if there were any hazards to be aware of on site prior to the inspection.
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SOURCE Golden State Crushing P/O NO. 24232 DATE 4/27/15
ADDRESS 5980 Outfall Circle, Sacramento PHONE (916-826-8067)
CONTACT PERSON Scott Silva TITLE Managing Member
INSPECTOR Felix Trujillo, Jr. TIME 9:30 AM PM
WEATHER Clear WIND DIRECTION & SPEED S @ 0-3 mph
EQUIPMENT OBSERVED Electric concrete recycling equipment consisting of screens, a crusher and conveyors.
OPERATING SCHEDULE: _____ HOURS/DAY _____ DAYS/WEEK
TYPE: Annual Breakdown Complaint Follow-up Surveillance Other Initial

REMARKS: I performed an inspection of the electric equipment. No issues were observed. I observed water sprays on the equipment and stockpiles. There were no particulate emissions emitted from the equipment. The operation was subject to Method 9 testing to comply with Subpart OOO. Mathew Peterson (Amador County APCD Air Quality Specialist, ARB ID:33053) performed the VE testing. The equipment is in compliance with the permit conditions. I recommend that a P/O be issued for this equipment.

Signature: _____

Supervisor: APD 5-31-16

Method 9 Summary		
Observed Points	Compliance Standard	Measured VE
Jaw Crusher	12	0
Jaw Crusher Conveyor	7	0
Cone Crusher	12	0
Screen	7	0
Belt Conveyor #1	7	0
Belt Conveyor #2	7	0
Belt Conveyor #3	7	0
Belt Conveyor #4	7	0
Belt Conveyor #5	7	0
Belt Conveyor #6	7	0
Under Screen Conveyor	7	0
Screen Cross Conveyor	7	0
Transfer Conveyor #1	7	0
Transfer Conveyor #2	7	0

XCS
5-31-16

Attachment

Cost-Effectiveness Analysis

COST EFFECTIVENESS ANALYSIS FOR BAGHOUSE

This cost effectiveness analysis was performed using EPA's CAQPS Control Cost Manual
EPA publication No. 452/B-02-001, Chapter 1, Baghouses and Filters (12/96)

FACILITY NAME: River City Waste Recyclers
LOCATION: 10286 Waferman Road, Elk Grove, CA 95624
PERMIT NO.: 24381 & 24382
EQUIPMENT DESCRIPTION: Concrete Recycling Operation

PM10 Baghouse Cost Effective Requirements
PM Cost effective Number 11400 \$/ton
PM emission from concrete recycling operation 1.625 tons/yr
CRF (5% interest and 20 year life) 0.080242587

Particulate Matter Control (Bag House) Cost Analysis

Gas to cloth ratio for shaker or reverse air bag house 2 Table 1.1
A 10 Table 1.4
B 1 Table 1.4
L 0.1
D 10

V 7.478512079 equation 1.11
acfm of system 12000 acfm
Bag Size 1604.597281 ft²
Cost of Bag house common housing design \$ 13,800.73
Cost of insulation \$ 4,619.25
Cost of bag (Pulse jet, BBR - Fiberglass, Table 1.B), bottom bag removal \$ 2,711.77
Bag house cages \$ 119.57
Cage cost \$ 12.28 \$/cage
Total cage costs \$ 1,462.25
Equipment Costs (A) \$ 22,594.00

Instrumentation \$ 2,259.40 0.10*A
California Sales taxes \$ 1,920.49 0.085*A
Freight \$ 1,129.70 0.05*A
Purchase Equipment Cost (PEC) \$ 27,903.59

Direct Installation Costs
Foundation & Supports \$ 1,116.14 0.04*PEC
Handling & erection \$ 13,951.79 0.50*PEC
Electrical \$ 2,232.29 0.08*PEC
Piping \$ 279.04 0.01*PEC
Insulation for ductwork \$ 3,853.25 0.07*PEC
Painting \$ 1,116.14 0.04*PEC
Total direct installation costs \$ 20,648.65

Indirect Costs (Installation)
Engineering \$ 2,790.36 0.10*PEC
Construction and field expense \$ 5,580.72 0.20*PEC
Contractor fees \$ 2,790.36 0.10*PEC
Startup-up \$ 279.04 0.01*PEC
Performance test \$ 279.04 0.01*PEC
Contingencies \$ 837.11 0.03*PEC
Total indirect installation costs \$ 12,556.64

Total Capital Investment (TCI) (PEC+DC+IC) \$61,108.85

Direct Annual Costs
Operating Labor \$1,803.10 (1.5 hr/shift) (1 shift/8 hrs) (2080 hrs/yr) * \$11.24
Supervisor \$270.47 15% of operating Labor
Maintenance Labor \$2,310.10 (1.5 hr/shift) (1 shift/8 hrs) (2080 hrs/yr) * \$17.77
Material \$2,310.10 100% of maintenance labor
Electricity \$5,077.95 (0.000181)(12000acfm)(10 in H2O)(2080 hr/yr)(\$0.1124kW/h)
Total Annual DC \$ 11,771.75

Indirect Annual Costs
Overhead \$4,016.26 60% of total labor and material
Admin charges \$1,723.18 2% of TCI
Property Tax \$611.09 1% of TCI
Insurance \$611.09 1% of TCI
Capital Recovery \$4,903.53
Total Annual IC \$11,364.15

Total Annual Costs (DAC + IC) \$23,135.87

TAC/tons controlled \$12,677.19