ENGINEERING EVALUATION
C&H Sugar Company; Plant #11911
Application #3108

BACKGROUND

C&H Sugar Company produces granulated and powdered sugar from raw cane sugar granules. C&H recently received a Title V Permit since the maximum potential carbon monoxide and particulate emissions from their Crockett, CA Sugar Refinery were projected to exceed 100 tons/year.

This application primarily concerns a modification to Source 228, Drivert Production, and a modification to Source 263, Drivert Packer. Source 228 has had one Centri-Sonic Classifier, two Schultz-O'Neil Pulverizers, two Bauermeister Pulverizers and one Rexnord Blower & Dryer. One Centri-Sonic Classifier and two Schultz-O'Neil Pulverizers will be removed from service and replaced with an additional Bauermeister Pulverizer. Sugar is pulverized and sized at S-228 and an invert syrup (a liquid carbohydrate sweetener that is an equal mixture of glucose and fructose resulting from the chemical breakdown (inversion) of sucrose during refining) is added in a non-vented blender immediately upstream of a fluid bed cooler/dryer. The resulting agglomerated product is called "drivert" and is one of the specialty sugars produced by C&H.

Two baghouses will be removed from service, A-225 and A-226. The new Bauermeister Pulverizer will be connected to baghouse, A-270. (A single conveyor will be used to convey the sugar discharged from A-227, A-268, A-269 and A-270 baghouses into the blender mentioned above.)

Source 263, which was previously abated by A-270, will be rerouted to A-224, which previously abated one of the Schultz-O'Neil pulverizers. (The discharge from A-224 will be rerouted to the melt.) The air flow through A-270 will be reduced to approximately 2400 acfm from approximately 6000 acfm. The air flow through A-224 will be increased to approximately 6000 acfm from approximately 3500 acfm.

These changes are shown in the table below:

Table 1. Application # 3108 Equipment Descriptions, Source Numbers, and Abatement Devices

Equipment Description	Initial Numbers			Numbers as Modified		
	S- #	A- #	P- #	S- #	A- #	P- #
Source 228 consisting of:	228					
Centri-Sonic Classifier	228	226	27	Removed	Removed	Removed
Schultz-O'Neil Pulverizer	228	224	25	Removed	Removed	Removed
Schultz-O'Neil Pulverizer	228	225	26	Removed	Removed	Removed
Bauermeister Pulverizer	228	268	58	No change	No change	No change
Bauermeister Pulverizers	228	269	59	No change	No change	No change
Bauermeister Pulverizers	New			228	270	60
Rexnord Blower & Dryer	228	227	28	No change	No change	No change
Drivert Packer, Source	263	270	60	263	224	25

Equipment Description	Initial Numbers			Numbers as Modified		
	S- #	A- #	P- #	S- #	A- #	P- #
263						

Two typographical errors have been discovered in the Title V permit and will be corrected. In Table II A – Permitted Sources, a component of Source 228, a Rexnord Blejoer & Dryer is actually a Rexnord Blower & Dryer. Blejoer will be replaced with Blower. An annual throughput limit of 5,000 tons per year exists in Table VII – O – Applicable Limits and Compliance Monitoring Requirements, S-228, Drivert Production. However, the throughput limit in the referenced permit condition #15586 is 6,000 tons per year. The throughput limit of 5,000 tons per year in Table VII – O will be replaced with a limit of 6,000 tons per year.

EXEMPTION DETERMINATIONS

Not applicable.

EMISSION INCREASES

Any replacement of an identifiable source within a group of sources permitted together under a single source is a new source. Hence, part of S-228 is new. The applicant desires to keep S-228 as a source since it would be difficult to monitor any throughput limit on part of the source. The emissions from the modified source S-228 are shown on the attached spreadsheet. Emissions are calculated by multiplying the outlet grain loading of the abatement device in grains per dry standard cubic feet times the air flow in standard dry cubic feet per minute times 60 minutes per hour (and optionally 24 hours a day times either 190 days or 250 days per year, depending on the column) divided by 7,000 grains per pound. The applicant has indicated that the baseline operation is approximately 190 days per year. The applicant would like to be permitted to operate source 228 for 250 days in a year that allows for 15 additional operating days above the expected operating time of 235 days in a year. Emissions for the proposed configuration are calculated using an emission rate of 0.0048 grains per dry standard cubic foot and an air flow of 2200 standard dry cubic feet per minute from each of the three baghouses abating a Bauermeister pulverizer. The applicant has source test data for a similar pulverizer/baghouse to substantiate the grain loading and airflow. The emission from the cooler-dryer will be limited to 0.1449 pounds per hour (3.478 pounds per day and approximately 0.0013 grains per dry standard cubic foot at 13,000 sdcfm) to avoid triggering BACT. At this emission rate, maximum daily emissions from source 228 will be less than 10 pounds of PM10 per day and the annual emissions will be 1.249 tons of PM10.

The baseline throughput for source 228 is approximately 4,800 tpy. The current configuration uses 4 pulverizers and a classifier plus the cooler-dryer. I have used the applicant's estimate of 190 operating days to produce 4,800 tons of drivert (product) from this source to calculate emissions. I have also used the same outlet grain loadings discussed above except that I also used the pulverizer outlet loading for the classifier since it transports essentially all of its output into a baghouse. Since a net one pulverizer plus the classifier will be removed, the airflow from the source will be lowered. Baseline emissions are calculated as 1.962 tpy. If the baseline emission from the cooler-dryer is ignored due to insufficient data, the baseline for the remainder of the source is still more than 1.6 tpy. The correction of the two typographical errors in the Title V permit have no emission impacts.

The implementation of this project reduces emissions of PM10. In addition, the District will set limits for PM10 emissions from this source that are dramatically lower that the standard default in Regulation 6 of 0.15 grains per dry standard cubic foot.

The change to an equivalent baghouse for Source 263 is an alteration and does not have an emission impact. Airflow is not changing.

Since the applicant has not requested to bank PM10 emissions, no banking certificate will be issued. A higher burden of proof is applied to bank emission reductions. I believe substantial additional source test data is necessary to support any banking effort.

PLANT CUMULATIVE INCREASE

	Current tons/yr	Increase tons/yr	Decrease tons/yr	New Total tons/yr
PM10	**0.000**	**0.00**	**0.000**	**0.00**

STATEMENT OF COMPLIANCE

Drivert Production, Source 228, is expected to comply with Regulation 6 Section 310 by emitting substantially less than 0.15 grains of PM10 per dry standard cubic foot of exhaust. Although Regulation 6 regulates TSP emissions, the PM10 limit is expected to be more stringent than the TSP limit. The correction of the typographical errors noted above will more correctly describe the source and its throughput limit.

Drivert Packer, Source 263, will continue to comply with Regulation 6 Section 310 by emitting less than 0.15 grains of particulate matter per dry standard cubic foot of exhaust.

The project is potentially less than 1000 feet from the nearest school but these sources emit sugar which is not an air toxic or contained on any ARB related list and is therefore not subject to the public notification requirements of Regulation 2-1-412.

At the permitted limit of 250 days per year and the grain loadings and air flows shown in the attached table, emissions from the S-228 Drivert Production (after control by the A-227, A-268, A-269, and A-270 baghouses) will be less than 10 pounds per day of PM_{10}. Therefore, BACT is not required for S-228.

Drivert Packer, Source 263, is not being modified and is therefore not subject to BACT.

Since total facility emissions of PM_{10} as identified in C&H Sugar's Title V application are currently shown to exceed 100 tons/year, this facility is potentially subject to the PM_{10} offset requirements of Regulation 2-2-303. Since this modification reduces PM10 emissions, there is no increase and no need for offsets or offset deferral.

C&H Sugar is considered to be a major facility. However, this application is not considered to be a major modification of a major facility because PM_{10} emission increases are less than 15 tons/year. Therefore, the PSD modeling requirements of Regulation 2-1-304.3 do not apply.

Compliance Assurance Monitoring, 40CFR64, is not applicable since the baghouses in this application are inherent process equipment for material recovery and not considered control devices. The baghouses must operate at an efficiency that has been achieved for similar baghouses during normal process operations.

The project is considered to be ministerial under the District's CEQA Regulation 2-1-311 because it is evaluated in accordance with Chapter 11.8 of the Permit Handbook and therefore is not subject to CEQA review. The engineering review for this project requires only the application of standard

permit conditions and standard emission factors and therefore is not discretionary as defined by CEQA.

MONITORING ANALYSIS

To demonstrate compliance with the PM10 emission limits for S-228, monitoring is imposed. An initial source test is recommended on each baghouse that abates S-228. Additional source tests are recommended for calendar year 2005 and every fifth year thereafter since an application for renewal of the Title V permit is required in calendar year 2005 and every fifth year thereafter.

PERMIT CONDITIONS

Source specific permit conditions for the "new" source 228 are listed below in strikethrough and underline format:

COND# 15886 ----------

For S–228: Drivert Production

1. The total throughput of sugar processed at the Drivert Production (S–228) shall not exceed 6,000 tons during any 12 consecutive month period. (basis: Cumulative Increase)

2. S-228 shall be abated by baghouses (~~A-224, A-225, A-226,~~ A–227, A–268~~, and~~ A–269 and A270) when in operation. (basis: Regulation 2-1-403)

~~3. To demonstrate compliance with Condition #1, the monthly total throughput of sugar shall be maintained in a District approved log. The throughput records shall be kept on site and made available for District inspection for a period of at least 5 years from the date on which a record is made. (basis: Regulation 2-6-501)~~

3. PM10 emissions from A227 shall not exceed a rate of 0.1449 pounds per hour. PM10 emissions from A268, A269 and A270 Baghouses shall not exceed an average of 0.0905 pounds per hour per baghouse. (basis: Cumulative Increase)

4. S228 shall be operated no more than 250 days in any consecutive 12-month period. (basis: Cumulative Increase)

5. Source testing options to demonstrate compliance with condition 3 are listed below. The purpose of this condition is to provide an option for a less costly modified Filterable Particulate (FP) test to demonstrate compliance with the PM10 limit. (basis: Regulation 2-1-403)

   a. Conduct a PM10 source test (including condensible particulate (CP)).

   b. Conduct a FP source test plus a CP source test incorporated into the FP source test train. If results exceed the PM10 limit in condition 1, conduct a PM10 source test (including condensibles).

   The test results shall be delivered to the District no later than 30 days from the date of sampling.

6. Particulate matter emissions will be determined by a. or b. below: (basis: Regulation 2-1-403)

   a. Emissions of PM10 will be determined by using the following:

1). Emissions of PM10 including CP will be determined in accordance with California Air Resources Board (CARB) Method 501 or

2). Emissions of PM10 including CP will be determined in accordance with California Air Resources Board (CARB) Method 501 plus CARB Method 5 (including CP) or

3). Emissions of PM10 will be determined in accordance with EPA Method 201/201A plus EPA Method 202. The EPA Method 202 sample train shall be incorporated into the Method 201/201A sample train.

b. Emissions of FP plus CP emissions will be determined by using:

1) Emissions of FP plus CP will be determined in accordance with CARB Method 5 (including CP) or

2). Emissions of FP plus CP will be determined in accordance with either EPA Method 5 or BAAQMD ST-15 plus EPA Method 202. The EPA Method 202 sample train shall be incorporated into the EPA Method 5 or BAAQMD ST-15 sample train, as appropriate.

7. In order to demonstrate compliance with condition #3 above, the owner/operator shall perform District approved source tests:

a. within 45 days of startup of the new Bauermeister pulverizer. If the source test option in Condition #5b is used and another source test is required to demonstrate compliance, the source test shall be performed within 45 days of the first.

b. in calendar year 2005.

c. in every fifth calendar year thereafter.

The owner/operator shall notify the Manager of the District's Source Test Section at least seven (7) days prior to the test, to provide the District staff the option of observing the testing. (basis: Regulation 2-1-403)

8. To demonstrate compliance with Conditions #1 through #7, the owner/operator of S228 shall maintain the following records in a District approved log: (basis: Regulation 2-6-501)

a. Daily records of the operating time for the S228 Drivert Production, summarized on a monthly basis.
b. Monthly records of the quantity of sugar processed by S228 Drivert Production.
c. All source test results for FP, CP and PM10 emissions from A227, A268, A269 and A270 Baghouses.

These records shall be kept on site for a minimum of 5 years from the date of entry and shall be made available to District personnel upon request.

Existing permit conditions, COND# 17425 and COND 17690, for sources 228 and 263 continue to apply and are shown below:

COND# 17425

General Conditions for the Following Sources Abated by Baghouses:

S201, S202, S203, S204, S205, S206, S207, S208, S209, S210, S211, S212, S213, S214, S218, S219, S220, S223, S228, S243, S244, S245, S255, S262, S263, S264, S265, S266, S267, S285, S289

1. Each baghouse shall be properly maintained and properly operated at all times that its associated PM emissions source(s) is/are in operation. (basis: Regulation 2-1-403)

2. Within 6 months of the issuance of the Title V permit, each baghouse shall be equipped with a magnahelic gauge or other approved device to measure the pressure drop across the filter bags. The pressure drop across the baghouse shall be maintained within the range recommended by the manufacturer or normal operating range established by the facility. The established pressure drop range for each baghouse shall be recorded and kept on file. (basis: Regulation 2-1-403)

3. In order to ensure the proper operation of each affected baghouse, the following items shall be inspected on at least a monthly basis. (basis: Regulation 2-1-403)
a. the measured pressure drop across the baghouse is within the established pressure drop range
b. evidence of visible particulate emissions from the exhaust of the baghouse

4. If a baghouse is found to be operating outside of the established pressure drop range or if there is evidence of visible particulate emissions from the exhaust of the baghouse, a visual inspection of the filter bags shall be conducted. Filter bags exhibiting holes, tearing, or significant wear shall be replaced. After any corrective action has been taken, the baghouse shall be reinspected in accordance with part 3. (basis: Regulation 2-1-403)

5. In order to demonstrate compliance with parts 3 and 4, the permit holder shall keep monthly inspection records for each affected baghouse in a District approved log. These records shall include the following information for each baghouse:

a. the time and date of each inspection
b. the name of the person conducting the inspection
c. the measured pressure drop versus the established pressure drop range
d. the results of each visible particulate emissions check
e. the observed condition of the filter bags when a visual inspection is performed

f. any corrective action taken as a result of the inspection

All records shall be kept on-site and made available for District inspection for a period of five years from the date on which a record is made. (basis: Regulation 2-6-501)

COND# 17690

General Requirements Pertaining to Maximum Throughput at Each Source:

1. Unless otherwise indicated in a specific permit condition, the maximum throughput for each source will be that which is listed as the capacity of the source in Table II A "Permitted Sources" of the Title V permit. (basis: Cumulative Increase)

2. Unless otherwise indicated in a specific permit condition, the operator shall, upon request from the APCO, make available any records relating to the hourly or daily throughput for each permitted source. (basis: Cumulative Increase)

RECOMMENDATION

Issue a Permit to Operate with Permit Condition Numbers 15886, 17425 and 17690 for the following source:

S228 Drivert Production, 6,000 tpy, consisting of 3 Bauermeister Pulverizers, Rexnord Blower & Dryer, 19,600 total cfm abated by A227, A268, A269 and A270 Baghouses.

Issue a Permit to Operate with Permit Condition Numbers 17425 and 17690 for the following source:

S263 Drivert Packer, Avapac In Line Powder Packer abated by A224 Baghouse

Correct two typographical errors in the Title V permit.

By: Donald P. Van Buren
Air Quality Engineer II

Date January 30, 2002