



Air Quality Permitting Statement of Basis

July 22, 2005

Permit to Construct No. P-050406

**The Amalgamated Sugar Company LLC
Mini-Cassia Factory
Paul, ID**

Facility ID No. 067-00001

Prepared by:

**Almer Casile, Permit Writer
AIR QUALITY DIVISION**

FINAL

Table of Contents

ACRONYMS, UNITS, AND CHEMICAL NOMENCLATURES	3
1. PURPOSE	4
2. FACILITY DESCRIPTION	4
3. FACILITY / AREA CLASSIFICATION.....	4
4. APPLICATION SCOPE	4
5. PERMIT ANALYSIS.....	4
6. PERMIT FEES	7
7. PERMIT REVIEW	7
8. RECOMMENDATION.....	8
APPENDIX A	9
APPENDIX B.....	11

Acronyms, Units, and Chemical Nomenclatures

AFS	AIRS Facility Subsystem
AIRS	Aerometric Information Retrieval System
AQCR	Air Quality Control Region
ASTM	American Society for Testing and Materials
BACT	Best Available Control Technology
CAA	Clean Air Act
CFR	Code of Federal Regulations
CO	carbon monoxide
DEQ	Department of Environmental Quality
EPA	U.S. Environmental Protection Agency
HAPs	Hazardous Air Pollutants
IDAPA	a numbering designation for all administrative rules in Idaho promulgated in accordance with the Idaho Administrative Procedures Act
km	kilometer
lb/hr	pound per hour
MACT	Maximum Achievable Control Technology
MMBtu	million British thermal units
NESHAP	National Emission Standards for Hazardous Air Pollutants
NO _x	nitrogen oxides
NSPS	New Source Performance Standards
PM ₁₀	particulate matter with an aerodynamic diameter less than or equal to a nominal 10 micrometers
PSD	Prevention of Significant Deterioration
PTC	permit to construct
PTE	potential to emit
SIC	Standard Industrial Classification
SIP	State Implementation Plan
SM	Synthetic Minor
SO ₂	sulfur dioxide
TASCO	The Amalgamated Sugar Co.
T/yr	tons per year
UTM	Universal Transverse Mercator
VOC	volatile organic compound

1. PURPOSE

The purpose for this memorandum is to satisfy the requirements of IDAPA 58.01.01.200, Rules for the Control of Air Pollution in Idaho, for issuing permits to construct.

2. FACILITY DESCRIPTION

This facility processes sugar beets into refined sugar. The facility consists of the Beet End and Sugar End, as well as support equipment for each line, which is housed in the main mill complex. Both lines are housed in the main mill complex. At the Beet End, sugar beets are processed into thick juice and byproducts. The byproducts are further processed into animal feed. At the Sugar End, thick juice is processed into dry sugar and molasses.

3. FACILITY / AREA CLASSIFICATION

This facility is classified as a major facility for both Tier I operating permit and the PSD permitting programs because it emits or has the potential to emit SO₂, NO_x, CO, PM₁₀, and PM at major source levels. The AIRS classification is "A" for all the above pollutants and "B" for VOCs and HAPs. (As part of TASCOS's Tier I permit renewal, TASCOS provided documentation demonstrating that the facility is a minor source for HAPs.) The SIC code defining the facility is 2063.

This facility is located within AQCR 63 and UTM zone 12. The facility is located in Minidoka County, which is designated as an attainment or unclassifiable area for all criteria air pollutants.

The AIRS information provided in the Appendix A defines the classification for each regulated air pollutant. This required information is entered into the EPA AIRS database.

4. APPLICATION SCOPE

TASCOS proposes to construct a natural gas-fired backup Nebraska boiler that will be used to provide up to 200,000 pounds of steam per hour in the event the facility's B&W boiler or Erie City boiler becomes partially or completely inoperable. TASCOS has requested that DEQ provide enforceable limits on the backup boiler that (1) limit the fuel type combusted in the boiler to natural gas exclusively, (2) limit the heat input capacity to 250 MMBtu/hr, and (3) limit the annual capacity factor to 10%. By making these limits enforceable, the standards of performance for nitrogen oxides, as required by 40 CFR 60.44b, do not apply. Refer to 40 CFR 60.44b(k).

4.1 *Application Chronology*

February 25, 2005	DEQ received application
March 22, 2005	DEQ determined application complete

5. PERMIT ANALYSIS

This section of the Statement of Basis describes the regulatory requirements for this PTC action.:

5.1 Equipment Listing

Backup Boiler

Manufacturer:	Nebraska Boiler
Model No.:	N2S-8S
Heat input capacity:	250 MMBtu/hr
Allowable fuel type:	Natural gas
Steam production:	200,000 pounds steam per hour
Stack ID:	P-B3

5.2 Emissions Inventory

Annual emission estimates for the backup boiler are based on 10% of the annual capacity of the boiler, which is equal to 876 hours of operation in any consecutive 12-month period (i.e. hours per year) at a steam production rate of 200,000 lb/hr, which, when operating in place of the B&W boiler or the Erie City boiler, the backup boiler's hourly emissions rates are reduced by a minimum of 20%, as determined through emission calculations, because the B&W boiler and the Erie City boiler combust coal rather than natural gas (see Tables 5.2 and 5.3). Toxic air pollutant emissions estimates, as shown in Table 4, do not exceed the net screening emissions levels contained in IDAPA 58.01.01.585 or 586. Emission calculations are based on AP42 emission factors, stack test data, engineering estimates, scrubber equipment control efficiencies, and throughput data submitted by the facility. A detailed emissions inventory has been included as Appendix B.

Table 1. BACKUP BOILER CRITERIA AIR POLLUTANT EMISSIONS INVENTORY*

Source Name	PM ₁₀		NO _x		SO ₂		CO		VOC	
	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr	lb/hr	T/yr
Nebraska Boiler	1.5	0.65	40.0	17.52	0.12	0.05	1.85	0.81	1.08	0.47

* Represents potential to emit with enforceable permit conditions

**Table 2. EMISSIONS REDUCTIONS
WHEN BACKUP BOILER OPERATES IN PLACE OF ERIE CITY BOILER**

Pollutant	Erie Boiler	Nebraska Boiler	Net Change in Hourly Emissions	Percent Reduction
	Lb/hr	Lb/hr	Lb/hr	%
PM ₁₀	49.0	1.49	-47.51	97
NO _x	380.0	40.0	-340.0	89.5
SO ₂	96.0	0.12	-95.88	99.9
CO	7.60	1.85	-5.75	75.7
VOC	1.36	1.08	-0.28	20.6

**Table 3. EMISSIONS REDUCTIONS
WHEN NEBRASKA BOILER OPERATES IN PLACE OF B&W BOILER**

Pollutant	B&W Boiler	Nebraska Boiler	Net Change in Hourly Emissions	Percent Reduction
	Lb/hr	Lb/hr	Lb/hr	%
PM ₁₀	44.4	1.49	-42.91	96.6
NO _x	280.0	40.0	-240.0	85.7
SO ₂	88.0	0.12	-87.88	99.9
CO	67.8	1.85	-65.95	97.3
VOC	1.36	1.08	-0.28	20.6

Table 4. TAPS EMISSIONS OF NEBRASKA BOILER

Pollutant	Emission Factor	Emission Rate	EL*	Percent of EL
	(lb/MMscf)	(lb/hr)	(lb/hr)	
Benzene	2.10E-03	2.10E-06	8.00E-04	0.26%
Benzo(a)pyrene	1.20E-06	1.20E-09	2.00E-06	0.06%
Formaldehyde	7.50E-02	7.50E-05	5.10E-04	14.71%
Naphthalene	6.10E-04	6.10E-07	3.33	0.00%
Toluene	3.40E-03	3.40E-06	25	0.00%

*Net screening emission level (IDAPA 58.01.01.585, 586)

5.3 Modeling

A modeling analysis is not required for this PTC because there is not an increase in emissions.

5.4 Regulatory Review

This section describes the regulatory analysis of the applicable air quality rules with respect to this PTC.

IDAPA 58.01.01.201 Permit to Construct Required

The proposed project is subject to IDAPA 58.01.01.201 and does not qualify for a PTC exemption; therefore, a PTC is required.

IDAPA 58.01.01.203 Permit for New and Modified Stationary Sources

The facility has shown to the satisfaction of DEQ that the construction of the back-up boiler will not cause an exceedance of any air quality standard.

IDAPA 58.01.01.210 Demonstration of Preconstruction Compliance with Toxic Standards

The applicant has demonstrated preconstruction compliance for all TAPs identified in the permit application.

40 CFR 60, Subpart Db Standards of Performance for Industrial-Commercial-Institutional Steam Generating Units

This subpart applies to the Nebraska boiler because it is a steam generating unit that has commenced construction, modification, or reconstruction after June 19, 1984, and has a heat input capacity from fuels combusted in the steam generating unit of greater than 29 MW (100 million Btu/hour). Particulate and sulfur dioxide emission standards do not apply because the Nebraska boiler is fired on natural gas only. In accordance with 40 CFR 60.44b(k), NO_x emission limits do not apply to the Nebraska boiler because it has a heat input capacity limit of 250 million Btu/hour. Because the boiler is limited to an annual capacity factor of 10% or less, performance testing and continuous emission monitoring is not required in accordance with 40 CFR 60.48b(i). Recordkeeping and reporting are also limited to initial start up, maximum heat input capacity demonstration, and annual capacity determinations in accordance with 40 CFR 60.49b.

5.5 Permit Conditions Review

Permit Condition 2.2 limits NO_x emissions from the backup boiler to 17.52 T/yr. NO_x is the most limiting pollutant and establishes the backup boiler's potential to emit.

Permit Condition 2.3 limits opacity to no more than 20% as required by IDAPA 58.01.01.625.

Permit Condition 2.4 limits the stack gas PM concentration to no more than 0.015 gr/dscf corrected to 3% oxygen as required by IDAPA 58.01.01.676.

Permit Conditions 2.5, 2.6, and 2.7 limit boiler operations to limit emissions and avoid NSPS NO_x monitoring requirements.

Permit Conditions 2.8 and 2.9 require the facility to monitoring and maintain records of the amounts of natural gas combusted each day and calculate the annual capacity factor for natural gas each calendar quarter. Permit Condition 2.9 requires the facility to calculate an annual capacity factor to be determined on a 12-month rolling average basis, with a new annual capacity factor calculated at the end of each calendar month. The information required by Permit Condition 2.8 and 2.9 shall be used to determine compliance with Permit Condition 2.5.

6. PERMIT FEES

The facility submitted the required application fee of \$1,000.00 on February 25, 2005, with their permit application. A processing fee is not due because there is no increase in emissions from the facility.

Table 5.1 PTC PROCESSING FEE TABLE

Emissions Inventory			
Pollutant	Annual Emissions Increase (T/yr)	Annual Emissions Reduction (T/yr)	Annual Emissions Change (T/yr)
NO _x	0	0	0
SO ₂	0	0	0
CO	0	0	0
PM ₁₀	0	0	0
VOC	0	0	0
TAPS/HAPS	0	0	0
Total:			00.0
Fee Due	\$ 0.00		

7. PERMIT REVIEW

7.1 *Regional Review of Draft Permit*

Regional office review was provided concurrently with the facility review of the draft permit.

7.2 *Facility Review of Draft Permit*

A facility draft permit was made available to the facility on May 12, 2005.

7.3 *Public Comment*

An opportunity for public comment period on the PTC application was provided in accordance with IDAPA 58.01.01.209.01.c. During this time, there were no comments on the application and no requests for a public comment period on DEQ's proposed action.

8. RECOMMENDATION

Based on review of application materials, and all applicable state and federal rules and regulations, staff recommends that TASC0 be issued PTC No. P-050406 for the backup Nebraska boiler project. No public comment period is recommended, no entity has requested a comment period, and the project does not involve PSD requirements.

AC/sd Permit No. P-050406

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Appendix A

AIRS Information

P-050406

AIRS/AFS^a FACILITY-WIDE CLASSIFICATION^b DATA ENTRY FORM

Facility Name: The Amalgamated Sugar Company LLC
Facility Location: MiniCassia
AIRS Number: 067-00001

AIR PROGRAM POLLUTANT	SIP	PSD	NSPS (Part 60)	NESHAP (Part 61)	MACT (Part 63)	SM80	TITLE V	AREA CLASSIFICATION A-Attainment U-Unclassified N- Nonattainment
~	A	A					A	U
NO _x	A	A	A				A	U
CO	A	A					A	U
PM ₁₀	A	A					A	U
PT (Particulate)	A	A					A	U
VOC	B						B	U
THAP (Total HAPs)	B						A	
Acetaldehyde	A						A	
			APPLICABLE SUBPART					
			Db					

^a Aerometric Information Retrieval System (AIRS) Facility Subsystem (AFS)

^b AIRS/AFS Classification Codes:

- A = Actual or potential emissions of a pollutant are above the applicable major source threshold. For HAPs only, class "A" is applied to each pollutant which is at or above the 10 T/yr threshold, or each pollutant that is below the 10 T/yr threshold, but contributes to a plant total in excess of 25 T/yr of all HAPs.
- SM = Potential emissions fall below applicable major source thresholds if and only if the source complies with federally enforceable regulations or limitations.
- B = Actual and potential emissions below all applicable major source thresholds.
- C = Class is unknown.
- ND = Major source thresholds are not defined (e.g., radionuclides).

Appendix B

Emissions Inventory

P-050406

**Mini Cassia Facility
Boiler Emissions Summary, Coal - Gas Comparison Table**

Boiler Operations Input

Lbs. steam/hr.	200,000
Est. annual hours of operation	876

Source Name	Source ID	Parameter	Emission Factor	UNITS	REFERENCE	Emissions (lb/hr.)	Emissions ¹ (ton/yr.)
Erie City Boiler (pulverized-coal)	S-82	PM10	0.248	lb/10 ⁶ lb steam	Assuming 80% of PM is PM10	49.0	21.5
		NOx	1.8	lb/10 ⁶ lb steam	Jan.-02 emp. Stack Test	380.0	166.4
		SO2	0.48	lb/10 ⁶ lb steam	Based on 1% sulfur and 80% scrubber efficiency.	96.0	42.0
		CO	0.038	lb/10 ⁶ lb steam	AP-42 (8/88) (Equiv. to 1/02 stack test + 60% SF)	7.6	3.33
		VOC	0.0068	lb/10 ⁶ lb steam	AP-42 8/88, Table 1.1-18, PC	1.4	0.60
B&W Boiler (stoker-coal)	S-81	PM10	0.222	lb/10 ⁶ lb steam	Assuming 80% of PM is PM10	44.4	19.4
		NOx	1.4	lb/10 ⁶ lb steam	Jan.-02 emp. Stack Test + 10% safety factor	280.0	122.6
		SO2	0.44	lb/10 ⁶ lb steam	Based on 1% sulfur and 80% scrubber efficiency.	88.0	38.5
		CO	0.338	lb/10 ⁶ lb steam	Jan.-02 emp. Stack Test + 10% safety factor	67.8	29.7
		VOC	0.0068	lb/10 ⁶ lb steam	AP-42 8/88, Table 1.1-18, spreader stoker	1.36	0.60
Nebraska Boiler (natural gas)	S-83	PM10	0.00748	lb/10 ⁶ lb steam	AP-42 (7/88), Table 1.4-2	1.5	0.65
		NOx	0.2	lb/10 ⁶ lb steam	NSPS NOx standard (see note 2)	40.0	17.52
		SO2	0.0008	lb/10 ⁶ lb steam	AP-42 (7/88), Table 1.4-2	0.12	0.05
		CO	0.00828	lb/10 ⁶ lb steam	Nampa Riley Boiler Comp. (Jan-04) Test + 25% SF.	1.65	0.81
		VOC	0.0064	lb/10 ⁶ lb steam	AP-42 (7/88)	1.08	0.47

Note 1: Annual emissions based on 876 hrs. of operations at maximum rates (200,000 lbs. steam / hr.).

Note 2: Nebraska boiler NOx EF is conservatively based on the NSPS NOx standard of 0.2 lbs./mmBtu.